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PLANTAE AFRICANAE III.

Aponogetonaceae

(Nouvelle Famille pour le Congo Belge)

PAR

G. TROUPIN,

Sous-directeur de Laboratoire.

Parmi les Monocotylées aquatiques, la famille des Aponogetonaceae n'a pas encore été signalée au Congo Belge. Les caractères principaux de cette famille, qui n'a qu'un seul genre : *Aponogeton* L. f., sont donnés dans la courte description suivante :

Plantes aquatiques à rhizome tubéreux avec nombreuses racines en touffe. *Feuilles* pétiolées ou non, submergées ou flottantes, oblongues-elliptiques à linéaires, avec quelques nervures principales parallèles et nombreuses nervures secondaires transversales. *Inflorescences* en épis terminaux, simples ou par 2-3, à fleurs disposées tout autour de l'axe, ou unilatérales, les jeunes inflorescences enfermées dans une bractée spathacée ultérieurement ± caduque. *Fleurs* actinomorphes, hermaphrodites ou unisexuées; tépales 1-3 ou absents, pétaloïdes ou bractéiformes, égaux ou inégaux, généralement persistants; étamines 6 ou plus, libres, hypogynes; anthères extrorses, basifixes, 2-loculaires; carpelles 3-6, libres; ovaire uniloculaire; style court; ovules 2 ou plus, ascendants, anatropes, fixés en 2 séries à la base ou à la suture ventrale de l'ovaire. *Capsules* déhiscentes, allongées ou enflées. *Graines* exalbuminées, à testa herbacé ou charnu, quelquefois côtelé; embryon droit, allongé, comprimé ou cylindrique; cotylédons épais.

Les subdivisions du genre ont été établies par A. Camus (1) sur les caractères de l'inflorescence :

(1) Camus A., *Bull. Soc. Bot. France*, LXX, p. 670 (1923).

Section *Euaponogeton* A. Camus. Inflorescence cylindrique, non dorsiventrale; fleurs disposées tout autour de l'axe.

Sous-section *Monostachys* A. Camus. Inflorescence formée d'un seul épi.

Sous-section *Polystachys* A. Camus. Inflorescence formée de plusieurs épis.

Section *Pleuranthus* A. Camus. Inflorescence dorsiventrale.

Sous-section *Monostachys* A. Camus. Inflorescence formée d'un seul épi.

Sous-section *Dichostachys* A. Camus. Inflorescence formée de 2 épis.

Le genre *Aponogeton* L. f. groupe actuellement environ 30 espèces, toutes des régions tropicales de l'Ancien Continent : Afrique, Asie tropicale orientale et Australie. En Afrique, sa distribution s'étend tout autour de la région guinéenne, de la Sénégambie et de l'Abyssinie au Cap de Bonne Espérance et Madagascar. Pour l'Afrique intercontinentale, 18 espèces sont connues, la plupart en Afrique orientale et méridionale.

Les deux espèces du Congo Belge, dont une nouvelle pour la science, se distinguent très facilement l'une de l'autre :

A. Feuilles oblongues, longuement pétiolées; inflorescences en un épi; fleurs unisexuées, disposées tout autour de l'axe; ovules 2 . . . . *A. oblongus.*
B. Feuilles linéaires, sessiles; inflorescences en un épi; fleurs hermaphrodites disposées unilatéralement; ovules 5-6(7) . . . . . *A. vallisnerioides.*

1. **Aponogeton oblongus** Troupin sp. nov. (Sect. *Euaponogeton* A. Cam., s/sect. *Monostachys* A. Cam.); ex affinitate *A. Stuhlmannii* Engl. sed foliis 5-nervatis, inflorescentiis ♂ vel ♀ densifloris praecipue differt.

Herba unisexualis. *Folia* petiolo longo gracili ad 20 cm longo; lamina oblonga, basi et apice obtusa, 5.5-8 cm longa et 0.7-1 cm lata, membranacea, 5-nervata. *Inflorescentia* ♂ monostachya, spicata, densiflora, ubique florifera, 2-4 cm longa; bractea spathacea persistens, ± 1 cm longa et 0.3-0.6 cm lata. *Flores* ♂ : tepala 2, ovato-oblonga, apice obtusa vel subtruncata, 1.5-2.5 mm longa et ± 1 mm lata, lineis bruneis fractis striata; stamina 6, 1-1.5 mm longa; carpella rudimentaria 3 in stipo unico minusculo disposita, quam stamina breviora. *Inflorescentia* ♀ ut inflorescentia ♂, 1-1.5 cm longa; bractea persistens, ± similis ei inflorescentiae ♂. *Flores* ♀ : tepala non visa; carpella 3, ovario ovoideo atque stylo tam longo quam ovario, toto carpello 1.5-2 mm alto; ovula 2 sub-

rotundata. *Infrutescencia* 1.5 cm longa et 0.5 cm lata; capsula styli vestigio ornata. *Semina* 2, brunnea, ad 2 mm longa et 0.5 mm lata.

Congo Belge :

District de l'Ubangi-Uele : Bas-Uele, oct. 1934, *A. De Wulf* 174 ! (holotype BR.).

Habitat. — Mare temporaire sur affleurement rocheux en savane.

Observation. — Vu l'état du seul spécimen récolté jusqu'à présent, il n'est pas possible de se prononcer sur le caractère monoïque ou dioïque de cette espèce. Plusieurs espèces ont des fleurs unisexuées ou hermaphrodites. Krause et Engler (2) pensent avec doute que ce phénomène serait dû à l'avortement de l'une ou l'autre pièce florale.

2. **Aponogeton vallisnerioides** Bak., Trans. Linn. Soc., XXIX, p. 158 (1875); Th. Dur. et Schinz, Consp. Fl. Afr., V, p. 493 (1895); Bennett in Thys-Dyer, Fl. Trop. Afr., VIII, p. 218 (1901); Krause u. Engl. in Engl., Pflanzenr., Heft 24 (IV, 13), p. 19, fig. 9 J-M (1906); A. Camus, Bull. Soc. Bot. France, LXX, p. 675 (1923).

Plante à minuscule rhizome tubéreux de 2-5 mm de diam. portant une touffe dense de racines filiformes de 2-6 cm de long. *Feuilles* sessiles, submergées, disposées en touffes; limbe linéaire, de 5-12 cm de long et de 0.3-0.5 cm de large, finement membraneux, enflé, blanchâtre dans la partie inférieure. *Inflorescences* à pédoncule de 7-20 cm de long; fleurs émergées, disposées unilatéralement en un épi solitaire ± densiflore, de 1-3 cm de long et de 0.8-0.3 cm de large; bractée spathacée arquée, largement lancéolée, de 1-1.5 cm de long, pliée en deux et soudée au sommet, membraneuse, multinervée, rapidement caduque. *Fleurs* blanches ou violet-mauve lavé, à 2-3 tépales largement ovales à suboblongs, arrondis à subobtus au sommet, de 3-4 mm de long et de 1.5-2.5 mm de large, finement membraneux, multinervés, nervures noirâtres interrompues, partiellement superposées; étamines 6 à filet subdorsifixe, de ± 1 mm de long; anthères oblongues, de ± 1 mm de long; carpelles 3, ovoïdes,

(2) Krause u. Engl. in Engl., *Pflanzenr.*, Heft 24 (IV, 13), 22 p., 9 fig. (1906).

de 1-1.5 mm de haut, surmonté du style persistant à extrémité noirâtre; ovules 4-6, ovoïdes, oblongs, atteignant 1 mm de long. *Fruits* capsulaires, contenant 5-6(7) graines fusiformes, brunâtres, atteignant 2 mm de long et de 0.4 mm de large.

Congo Belge :

District de l'Ubangui-Uele : village Wabo, juin 1906, *Seret* 601 !; Tukpwo, oct. 1951, *Gérard* 76 !; Parc National Garamba, piste centrale vers km 30, oct. 1951, *De Saeger* 1450 !; id., environs gîte Ndelele, frontière du Soudan Anglo-Egyptien, juin 1952, *Troupin* 1295 !; id., piste centrale vers km 30, juill. 1952, *Troupin* 1585 !

District du Haut-Katanga : env. Kabare près de Manono, plaine de la Lukumbe, févr. 1953, *Hurner* 49 !

Soudan Anglo-Egyptien : Province du Bahr-el-Ghazal : Djür, *Schweinfurth* 1704, 1761, 4266; Bongo, *Schweinfurth* 2152.

Uganda : Ukidi, 2 1/2° Lat. N., nov. 1862, *Grant* s. n.

Habitat. — Dans les Uele, mare temporaire sur dalle latéritique en affleurement (Pengbele), en association avec *Heteranthera callifolia* Reichb., *Marsilea* sp., *Cyperus* div. sp. Au Haut-Katanga, dans étangs naturels.

Observation. — Le spécimen *Hurner* 49 du Haut-Katanga est déterminé avec doute comme *A. vallisnerioides*, la plante étant beaucoup plus grêle et de dimensions réduites. Aucun caractère différenciel n'a pu être décelé dans la fleur. Nous supposons que cette espèce présente des aspects légèrement différents à la limite méridionale de son aire.

Jardin Botanique de l'État,
octobre 1953.

PSEUDOMUSSAENDA WERNHAM AU CONGO BELGE

(Rubiaceae)

PAR

G. TROUPIN et E. PETIT

Sous-directeurs de Laboratoire.

Le genre *Mussaenda* L. est bien connu de tous les taxonomistes d'Afrique; plusieurs de ses espèces, en effet, sont caractérisées par le développement assez spécial d'un lobe du calice atteignant de grandes dimensions. Ces lobes, de couleur rouge vif, jaune ou blanc, donnent à la plante un bel aspect décoratif mis d'ailleurs à profit par quelques résidants sous les tropiques pour l'ornementation de leurs propriétés.

Au Congo Belge, l'attention n'a pas encore été attirée jusqu'à présent sur le fait que ces plantes à fleurs particulières appartiennent, non pas à un seul genre, mais à deux groupes génériques nettement distincts selon les normes admises actuellement dans la classification systématique des Rubiaceae. Cet aspect du problème nous intéressant, notre intention est d'effectuer dans un avenir très proche la révision des *Mussaenda* L. du Congo Belge et du Ruanda-Urundi. Aujourd'hui nous publions ci-dessous une révision des *Pseudomussaenda* WERNHAM qui nous sont connus du Congo Belge.

TH. et H. DURAND, SCHINZ et DE WILDEMAN ont signalé, à plusieurs reprises, la présence au Congo Belge de *M. luteola* DELILE, espèce qui se distingue de tous les *Mussaenda* par le fruit déhiscent, alors que les autres espèces possèdent des baies. La nomenclature assez confuse de cette espèce a été récemment mise au point par

VERDCOURT (1) et il résulte de son étude que *M. luteola* doit s'appeler maintenant *Pseudomussaenda flava* VERDCOURT. Toutefois ce que TH. et H. DURAND, SCHINZ et DE WILDEMAN ont appelé *M. luteola* DEL. est en fait un mélange de deux espèces sans que l'une d'elles soit *M. luteola.*

Notre étude nous a permis de reconnaître 3 espèces au Congo Belge. Le vrai *M. luteola,* appelé maintenant *Pseudomussaenda flava* VERDCOURT, a été trouvé au N.-E. du Congo Belge.

Sauf indication, tous les spécimens examinés sont déposés dans les herbiers du Jardin Botanique de l'État à Bruxelles.

* * *

Pour permettre la distinction entre *Mussaenda* et *Pseudomussaenda,* nous donnons tout d'abord la description de chacun de ces deux genres.

Mussaenda L.

Fleurs à tube du calice oblong, turbiné ou ovoïde; lobes 5, triangulaires ou linéaires, dont parfois un ± développé en un grand limbe pétaloïde, coloré et souvent stipité; corolle à tube ± allongé et dilaté au sommet, à gorge velue; lobes 5, valvaires; étamines 5, sessiles ou subsessiles, insérées dans la partie élargie du tube de la corolle; ovaire à 2 loges multiovulées; style grêle, bifide. *Fruit* bacciforme, indéhiscent.

Pseudomussaenda WERNHAM

Fleurs à tube du calice turbiné ou suboblong; lobes 5, très étroits, linéaires et ± allongés, parfois 1 (rarement 2) développé en un grand limbe petaloïde, coloré et stipité; corolle à tube allongé, et étroit, légèrement dilaté vers le sommet, à gorge velue; lobes 5, valvaires et ± mucronés au sommet; étamines 5, subsessiles, insérées dans la partie élargie du tube de la corolle; ovaire à 2 loges multiovulées; style grêle, bifide. *Capsule* 2-loculaire, déhiscente en 2 valves.

(1) VERDCOURT, B., *Kew Bull.,* 1951, p. 381-383 (1952).

Clé des Pseudomussaenda.

Feuilles elliptiques-lancéolées ou lancéolées, longuement aiguës au sommet, à face supérieure glabre à part quelques poils sur la nervure primaire . . . . . 2. *P. angustifolia.*

Feuilles ovales-elliptiques à largement ovales, aiguës à acuminées, à face supérieure pubérulente à glabrescente :

Nervures latérales 4-5 de chaque côté de la primaire, feuilles ne dépassant pas 6 cm de long et 3 cm de large, glabrescentes à la face inférieure excepté les nervures qui sont pubérulentes; capsules glabrescentes . . . . . 1. *P. Monteiroi.*

Nervures latérales 6-9 de chaque côté de la primaire; feuilles atteignant 12 cm de long et 5.5 cm de large, ± densement pubérulentes à la face inférieure; capsules pubérulentes . . . . . 3. *P. flava.*

1. **Pseudomussaenda Monteiroi** (Wernham) Wernham, Journ. of Bot., LIV, p. 298 (1916).

M. Monteiroi Wernham, Journ. of Bot., LI, p. 240 (1913).

M. luteola Auct. non Delile; Th. Dur. et Schinz, Acad. Roy. Belg., Mém. in 8°, LIII, 4, p. 156 (1896); Th. Dur. et De Wild., Bull. Soc. Roy. Bot. Belg., XXXVII, p. 118 (1898); Th. et H. Dur., Syll., p. 249 (1909); De Wild., Ann. Mus. Congo Belge, Bot., Sér. V, III, p. 283 (1910).

Congo Belge :

District Côtier : Moanda, 1907, *Gillet* s. n. !

District du Bas-Congo : Boma, *Monteiro* s. n. (holotype BM.); id., juin 1893, *Dupuis* 51 !; id., route des Sources St. Jean, déc., *Dacremont* 118 !; *Kisantu*, 1930-1933, *Vanderyst* 20.477 ! 28.045 ! 28.114 ! 28.634 ! 28.636 !; Kikoka, janv. 1909, *Vanderyst* s. n. !; sine loco, 1921, *Claessens* s. n. !

Angola : Anha — Benguella, *Gossweiler* 4273 (BM.).

Observations. — 1. — La distinction entre *P. Monteiroi* (Wernham) Wernham et *P. Gossweileri* Wernham (2) est assez difficile à établir. Selon la littérature, la seconde espèce différerait de la première par le lobe pétaloïde du calice moins résistant, plus petit et étroitement ovale; d'autre part, Mr J. P. M. Cannon, du British

(2) Wernham, *Journ. of Bot.*, LIV, pp. 298-299 (1916).

Museum, qui a eu l'amabilité de comparer pour nous les types de ces deux espèces, signale que les boutons floraux présentent quelques différences; *P. Gossweileri* possède des boutons floraux à sommet ± obtus et subaplati, la partie dilatée du tube de la corolle étant le double de la longueur des lobes tandis que *P. Monteiroi* a des boutons floraux à sommet ± aigu et allongé, la partie dilatée du tube de la corolle et les lobes étant ± d'égale longueur. L'examen des 10 échantillons récoltés au Congo Belge nous a montré que les caractères utilisés jusqu'à présent pour reconnaître les deux espèces sont très variables et ne sont pas, à notre avis, suffisants pour distinguer des taxa différents. Les variations remarquées dans la forme, la consistance et la grandeur des lobes pétaloïdes du calice, et dans la forme des boutons nous incitent à appeler tous les échantillons récoltés au Congo Belge *P. Monteiroi* première espèce décrite, d'autant plus que quelques-uns de ceux-ci ont été récoltés dans la localité de l'holotype (Boma).

2. — Wernham a signalé erronément que le spécimen *Monteiro* s. n., holotype de l'espèce, a été récolté dans l'Angola.

2. **Pseudomussaenda angustifolia** Troupin et Petit sp. nov., ex affinitate *P. flavae* Verdcourt, sed foliorum tenuiorum forma indumentoque praecipue differt.

Mussaenda luteola Auct. non Delile; De Wild., Pl. Bequaert., II, p. 228 (1923), IV, p. 425 (1928).

Frutex ad 3 m altus; ramuli virgati, brunnei, lenticellati, sparsissime puberuli, novelli dense griseo-puberuli; stipulae e vagina 2-apiculatae, ± 4 mm longae, puberulae. *Folia* petiolo ± 5 mm longo; lamina elliptico-lanceolata vel lanceolata, basi decurrens et longe cuneato-angustata, apice longe acuta, 3.5-10 cm longa et 1-3.5 cm lata, membranacea, supra glabra nisi in nervo primario atque margine sparsissime puberula, subtus glabra quoque nisi in nervis puberulis; nervi laterales utrinsecus primarii 5-7. *Cymulae* terminales, laxae, 5-8-florae, axibus puberulis usque 3 cm longis, bracteis setaceis vix 2 mm longis. *Flores* : calicis tubus 3-4 mm longus et 1 mm latus, puberulo-subtomentosus; lobi setacei, ad 1.1 cm longi, basi triangulari 0.5 mm lata; lobus petaloideus stipite ± 2 cm longo puberulo, lamina ovata, basi apiceque obtusa vel subrotundata, usque 5 cm longa et 3.5 cm lata, flava, venis puberulis; corollae tubus flavus, elongatus, 2-3 cm longus, extus sparse puberulus, fauce

dense flavo-villosus, lobis apice acumine 2.5 mm longo praeditis ± 1 cm longis et extus sparse flavo-puberulis. *Capsula* oblongo-ellipsoidea, 5-8 mm longa et 3 mm lata, sparse puberula.

Congo Belge :

District Forestier Central : Penghe, entre Avakubi et Epulu, févr. 1914, *Bequaert* 2285 ! (holotype).

Habitat : Forêt ombrophile de terre sèche.

Observation. — Mildbraed a récolté près d'Aruwimi (Banga, avr. 1908, n° 3268) un spécimen qu'il a appelé *M. luteola* Delile (3). Il est peu probable qu'il s'agisse de cette espèce et nous supposons que Mildbraed aurait plutôt récolté *P. angustifolia.*

3. **Pseudomussaenda flava** Verdcourt, Kew Bull., 1951, p. 378 (1952).

Congo Belge :

District du Lac Albert : Ishwa, sept. 1934, *Bredo* 1245 ! 1246 ! 1361 ! 1482 ! 1546 !; Kasenyi, alt. 650 m oct. 1931, *Lebrun* 4096 !; id., escarpement, juill. 1937, *Ghesquière* 4738 !; Mahagi-Port, alt. 1100-1600 m, escarpement, *Lebrun* 3820 ! *Bredo* 1643 ! 1790 !, *Lathouwers* III-46 !; id., alt. 600 m, août 1947, *Taton* 539 ! 540 !; village de Kukoi, chef. Mokambo, alt. env. 850 m, août 1945, *Germain* 4152 !

Soudan Anglo-Égyptien : route Yei-Meridi, à hauteur du Mont Embe, mars 1952, *Troupin* 476 !

Uganda : Nebbi, sept. 1940, *Purseglove* 1053 !; Arua, W. Nile, janv. 1938, *Hazel* 418 !

Éthiopie : riv. Sako, route Gambeila-Dembidollo, alt. 600 m, sept. 1941, *Germain* 1048 !

Habitat. — Rochers, savane rocheuse, talus en bordure de la route, savane arborée.

(3) Mildbraed, J., *Wiss. Ergebn. Deutsch. Zentr.-Afr. Exped., 1907-1908, Bot.,* II, p. 316 (1911).

Noms vernaculaires : Bongasi, Bongosi (dial. kilur).

Nous remercions bien vivement Mr J. F. M. Cannon, du British Museum (Londres), lequel nous a communiqué de précieux renseignements au sujet de quelques espèces peu connues du genre *Pseudomussaenda*.

Jardin Botanique de l'État, Bruxelles,
octobre 1953.

ESPECES NOUVELLES DU GENRE *LOTUS* L.

(Papilionaceae)

PAR

R. BOUTIQUE.

Attaché à l'I. N. E. A. C.

La révision du genre *Lotus* que nous avons faite pour la Flore du Congo Belge et du Ruanda-Urundi nous a permis de décrire 3 espèces nouvelles.

1. **Lotus Lebrunii** Boutique, sp. nov.; ex affinitate *L. Becquetii* Boutique, sed caulibus praecipue ad apicem pubescentibus, foliis pedunculis pedicellis calycibusque dense pubescentibus recedit.

Herba radicans, caespitosa; caules apice dense pubescentes. *Folia* dense pubescentia, subsessilia, 5-pennata, stipulis nullis, rachide 4-5 mm longa; foliola petiolulo 0.5 mm longo; foliola 3 superiora elliptica ad elliptico-obovata, basi attenuata, apice submucronata, 6-9 mm longa et 2.5-4 mm lata; foliola 2 inferiora deltoideo-ovata, basi late rotundata, 3-6 mm longa, 2.5-5.5 mm lata, nervis lateralibus infra satis distincta. *Inflorescentiae* umbellatae, 4-6-florae; bractea ad apicem pedunculi 4.5-7 cm longi dense puberuli sita, 1-foliolata, petiolo 0.5-1 mm longo, lamina ovato-deltoidea, basi late rotundata, apice attenuata, 5-7 mm longa, 2-3 mm lata. *Flores* rosei, rubro striati; pedicellus 1.5-2 mm longus, dense pubescens; calyx dense pubescens, tubo 2-3 mm longo, dentibus anguste deltoideis 1.5-2 mm longis; vexillum oblongum, basi attenuatum, apice late rotundatum, 8-9 mm longum, 3-5 mm latum; alae 8-9 mm

longae; carina rotundato-incurvata, apice attenuata, 7-9 mm longa; ovarium anguste teres, 4.5-5 mm longum, glabrum; stylus 3.5-4 mm longus, stigmate terminali; ovula 25-30. *Legumen* ignotum.

District du Lac Albert : Entre Mahagi et Djugu, savane rocheuse à 2400 m d'altitude, herbe radicante formant tapis, fleurs roses striées de rouge, sept. 1931, Lebrun 3870 (holotype BR.); id., petite herbe étalée sur le sol en rosace, formant tapis, fleurs rose pâle, Lebrun 3875.

2. **Lotus Becquetii** Boutique, sp. nov.; a *L. corniculato* L., bractea 1-foliolata recedit.

Caules ramosi, herbacei, sparse pubescentes ad glabri. *Folia* subsessilia, 5-pennata, stipulis 2 parvis atrobrunneis, rachide 4-7 mm longa pubescenti; foliola sparse pubescentia et ± ciliata; petiolulus 0.5-0.7 mm longus, pubescens; foliola 3 superiora obovata, basi longe attenuata, apice rotundata, 8-11 mm longa et 3-6 mm lata; foliola 2 inferiora asymetrica, deltoideo-ovata, basi rotundata ad subcordata, 3-6 mm longa et 2-5 mm lata, nervis lateralibus infra satis distinctis. *Inflorescentiae* umbellatae, 4-5-florae; bractea ad apicem pedunculi 5-12 cm longi pubescentisque sita, 1-foliolata, distincte petiolata, asymetrica deltoideo-ovata, foliolis inferioribus similis. *Flores* albi, violaceo-coeruleo striati; pedicellus 2 mm longus, pubescens; calyx pubescens, tubo 3 mm longo, dentibus anguste deltoideis 2-2.5 mm longis; vexillum longe oblongum, basi breviter attenuatum, 9-9.5 mm longum et 3.5-4 mm latum; alae 10 mm longae; carina rotundato-incurvata, apice attenuata, 8-9 mm longa; ovarium anguste teres, 5 mm longum; stylus 3 mm longus, stigmate terminali; ovula ± 35. *Legumen* ignotum.

District du Ruanda-Urundi : Uwizuiga Muramvya, pâturages à 2000 m d'altitude, fleurs blanches striées de bleu mauve, Becquet 902 (holotype BR.); vallée marécageuse du Lugege, Delhaye s. n.

3. **Lotus subdigitatus** Boutique; sp. nov.; a *L. discolore* E. Mey., foliolis subdigitatis et in eodem folio heteromorphis recedit.

Herba suffruticosa, 50-100 cm longa, stirpe brevi lignosa, radicibus longis lignosis; caules herbacei, ramosi, glabri sed apice leviter puberuli. *Folia* 5-pennata, subdigitata, stipulis nullis, rachide petioloque subnullis; foliola petiolo 0.7-1 mm longo, utrinque appresse

pubescentia vel glabra, 4-13 mm longa, 1.5-4 mm lata; foliolum terminale oblongo-obovatum, basi longe attenuatum, apice mucronatum; foliola 2 lateralia superiora terminali ± similia, paulum sed praecipue basi asymetrica; foliola 2 lateralia inferiora valde asymetrica et lateraliter inserta. *Inflorescentiae* umbellatae 6-7-florae; bractea ad apicem pedunculi 6-8 cm longi puberulique sita, 1-foliolata, distincte petiolata, anguste oblonga, 4-6 mm longa, 1-1.3 mm lata. *Flores* rosei vel albi et rubro-maculati; pedicellus 2-3 mm longus, pubescens; calyx sparse pubescens, tubo 3 mm longo, dentibus deltoideis 0.7 mm longis; vexillum oblongo-obovatum, basi longe attenuatum, apice rotundatum, 9 mm longum, 6 mm latum; alae 7 mm longae; carina incurvata, apice attenuata, 8 mm longa; ovarium anguste teres, 4-5 mm longum, glabrum; stylus 4-5 mm longus, stigmate terminali; ovula ± 20. *Legumen* ignotum.

District du Haut-Katanga : Mukana, savane à 1800 m d'altitude, fleurs roses, mars 1948, G. de Witte 3482 (holotype BR.); id., à 1810 m d'altitude, fleurs blanches tachetées de rouge, avr. 1947, G. de Witte 2502.

Jardin Botanique de l'État,
octobre 1953.

A REVISION OF CERTAIN AFRICAN GENERA OF HERBACEOUS *RUBIACEAE*

V. — A REVISION OF THE GENUS *PENTAS* BENTHAM TOGETHER WITH A KEY TO RELATED GENERA

BY

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INTRODUCTION.

Apart from short lists of species in local floras no full account would appear to have been written about this genus. A revision of the few species known up to the year 1877 appears in Hiern's account (11) of the *Rubiaceae* in the Flora of Tropical Africa. G. F. Scott Elliot (15) published a revision of the genus *Pentas* but it is not a revision in the accepted sense of the word, as he merely lists the species known, without any key or indication of affinities. Britten (4) published a scathing criticism of this paper.

The genus was erected by Bentham (2) for a cultivated plant obtained from a belgian horticulturist. Previous to description it had gone under the name of *Sipanea carnea* and Bentham retained the specific epithet when naming the plant since it was appropriate. The origin of the plant was unknown to Bentham and presumably also to the cultivator. Bentham assumed that the plant had come from Africa and in the same genus he included a plant, obviously

closely related to his *P. carnea,* (but not now considered congeneric), which Dr. Vogel had collected at Accra. Actually it is certain that the plant which was cultivated about 1840-60 was actually descended from material collected on the Comoro Islands. These islands were well known early in the 19th. century whereas the East African mainland was but little explored.

About 75 years previous to Bentham's erection of *Pentas,* Peter Forskål (10) described a species from Arabia, *Ophiorrhiza lanceolata,* and the true identity of this plant has already been discussed (Verdcourt, 16). Hiern (11), Bentham and Hooker (3), Deflers (7) and others considered rightly that it was a *Pentas* and synonymised it with *P. carnea.* Delile (8), De Candolle (6), and Wernham (17) quite wrongly considered it to be the same as *Pseudomussaenda flava* Verdcourt (*P. lanceolata* Wernham, *Mussaenda luteola* Del., excl. syn. Forsk.). The view taken in the present work is that the plants described by Bentham and Forskål are not quite identical but represent subspecies of one highly variable species.

GENERIC SYNONYMS.

Robert Brown (5) associated Forskål's plant with a manuscript name *Neurocarpaea,* which is of course invalid, notwithstanding which fact Britten (4), Hiern (12) and later Spencer Moore took up the name in preference to *Pentas.* Richard (13) described two species under the same *Vignaldia.* The first species *V. Quartiniana* is here designated genotype and the name is thus an absolute synonym of *Pentas* and since the genotype belongs to the subsection *Pentas* s. s. the name may not be used for a section of the genus. Schweinfurth (14) emended the name to *Vignaudia* and considered it to contain the plant now known as *Pseudomussaenda flava* Verdcourt.

Check list of species and infraspecific categories of *Pentas.*

Pentas Benth., 1840.
Subgenus *Phyllopentas* Verdcourt subgen. nov.
1a. *P. ionolaena* K. Schum., 1900.
1b. subsp. *Schumanniana* (K. Krause, 1907) Verdcourt comb. nov.
1c. subsp. *madagascariensis* Verdcourt subsp. nov.
2. *P. hirtiflora* Baker, 1887.
3. *P. mussaendoides* Baker 1883.
4. *P. austro-orientalis* Homolle et Verdcourt sp. nov.
Subgenus *Vignaldiopsis* Verdcourt subgen. nov.
5. *P. elata* K. Schum., 1895.

6a. *P. Schimperiana* (A. Rich., 1847) Vatke 1876.
6b. subsp. *occidentalis* (Hook. f., 1864) Verdcourt comb. nov.
Subgenus *Megapentas* Verdcourt subgen. nov.
7. *P. longituba* K. Schum. ex Engl., 1894.
8. *P. pseudomagnifica* M. R. F. Taylor, 1940.
9a. *P. nobilis* Sp. Moore, 1908.
9b. var. *grandifolia* Verdcourt var. nov.
10. *P. graniticola* Bruce, 1933.
Subgenus *Chamaepentadoides* Verdcourt subgen. nov.
11a. *P. hindoioides* K. Schum., 1904.
11b. var. *Williamsii* Verdcourt var. nov.
11c. var. *glabrescens* Verdcourt var. nov.
11d. var. *parensis* A. Peter var. nov. in sched.
Subgenus *Longiflora* Verdcourt subgen. nov.
12a. *P. longiflora* Oliv., 1887.
12b. f. *glabrescens* Verdcourt f. nov.
13. *P. Liebrechtsiana* De Wild., 1903.
14a. *P. decora* Sp. Moore, 1910 emend. Verdcourt.
14b. f. *opposita* Verdcourt f. nov.
14c. var. *triangularis* (De Wild., 1914) Verdcourt comb. nov.
14d. var. *lasiocarpa* Verdcourt var. nov.
15. *P. geophila* Verdcourt sp. nov.
Subgenus *Pentas* s.s.
Section *Coccineae* Verdcourt sect. nov.
16a. *P. Bussei* Krause, 1909.
16b. f. *brevituba* Verdcourt f. nov.
16c. f. *minor* Verdcourt f. nov.
16d. f. *glabra* Verdcourt f. nov.
17a. *P. parvifolia* Hiern, 1877.
17b. f. *intermedia* Verdcourt f. nov.
17c. f. *spicata* Verdcourt f. nov.
Section *Monomorphi* Verdcourt sect. nov.
18a. *P. micrantha* Baker, 1885.
18b. subsp. *Wyliei* (N. E. Brown, 1901) Verdcourt comb. nov.
19. *P. herbacea* (Hiern, 1898) K. Schum., 1901.
20. *P. angustifolia* (A. Rich. ex DC. 1830) Verdcourt comb. nov.
Section *Hirtistylus* Verdcourt sect. nov.
21. *P. caffensis* Chiov., 1940.
Section *Papillopilosa* Verdcourt comb. nov.
22. *P. concinna* K. Schum., 1903.
23. *P. pauciflora* Baker, 1895.
24. *P. glabrescens* Baker, 1895.
Section *Pentas* s.s.
25a. *P. zanzibarica* (Klotzsch, 1862) Vatke 1875.
25b. var. *rubra* Verdcourt var. nov.
25c. var. *membranacea* Verdcourt var. nov.
25d. var. *pembensis* Verdcourt var. nov.
25e. var. *intermedia* Verdcourt var. nov.
25f. var. *latifolia* Verdcourt var. nov.
25g. var. *milangiana* Verdcourt var. nov.
26a. *P. pubiflora* Sp. Moore, 1908.
26b. subsp. *bamendensis* Verdcourt subsp. nov.
27. *P. Purseglovei* Verdcourt sp. nov.
28a. *P. purpurea* Oliv., 1873.

28b. var. *Buchananii* Scott Elliot, 1896.
28c. subsp. *Mechowiana* (K. Schum., 1897) Verdcourt comb. nov.
29. *P. arvensis* Hiern, 1877.
30. *P. cleistostoma* K. Schum., 1897.
31a. *P. lanceolata* (Forsk., 1775) Deflers, 1889.
31b. f. *velutina* Verdcourt f. nov.
31c. var. *membranacea* Verdcourt var. nov.
31d. subsp. *longituba* Verdcourt subsp. nov.
31e. subsp. *cymosa* (Klotzsch, 1862) Verdcourt comb. nov.
31f. subsp. *cymosa*, var. cult. *carnea* (Benth., 1844) Verdcourt comb. nov. (G).
31g. subsp. *Quartiniana* (A. Rich., 1847) Verdcourt comb. nov.
31h. subsp. *Quartiniana*, var. *leucaster* (Krause, 1911) Verdcourt comb. nov.
31i. subsp. *Quartiniana*, var. cult. *alba* Verdcourt var. nov.
31j. subsp. *Quartiniana*, var. *nemorosa* (Chiov., 1935) Verdcourt comb. nov.
31k. subsp. *Quartiniana*, var. *usambarica* Verdcourt var. nov.
31l. subsp. *Quartiniana*, var. *oncostipula* (K. Schum., 1904) Verdcourt comb. nov.
31m. subsp. *Quartiniana*, var. *oncostipula* f. *velutina* Verdcourt f. nov.

Incertae sedis, et minus cognitae.

32. *P. Decaryana* Homolle sp. nov. in sched. (subgen. *Phyllopentas*).
33. *P.* sp. nov. (Subgen. *Phyllopentas*).
34. *P.* sp. nov. (Subgen. *Phyllopentas*).

The other names which have been published in the literature have been dealt with as follows :

P. Ainsworthii Scott Elliot, 1896	=	31a.
P. carnea Benth., 1844	=	31f.
P. coccinea Stapf., 1924	=	16a.
P. coerulea Chiov., 1940	=	31h.
P. confertifolia Baker, 1895	=	*Pentanisia confertifolia* (Baker) Verdcourt.
P. Dewevrei De Wild. and Durand 1899	=	*Otomeria volubilis* (K. Schum.) Verdcourt.
P. elatior (A. Rich. ex DC., 1830) Walp., 1848	=	*O. elatior* (A. Rich. ex DC.) Verdcourt.
P. extensa K. Schum. ex Krause in Mildbr.	=	25e.
P. fililoba Krause, 1911	=	*Virectaria major* (K. Schum.) Verdcourt.
P. flammea Chiov., 1932	=	16a.
P. globifera Hutch., 1921	=	14c.
P. Homblei De Wild., 1914	=	14a.
P. involucrata Baker, 1895	=	*Borreria dibrachiata* (Oliv.) K. Schum.
P. Klotzschii Vatke, 1875. (nom. conf.)	=	16a and 31e.
P. lanceolata (Forsk.) K. Schum.	=	31a as to name, 16a as to plant.
P. Ledermannii K. Krause, 1920	=	6b.
P. leucaster K. Krause, 1911	=	31h.
P. magnifica Bullock, 1935	=	7.
P. Mechowiana K. Schum., 1897	=	28c.
P. modesta Baker, 1895	=	*Kohautia coccinea* Royle.
P. mombassana Hiern ex Oliv., 1887	=	17a.

Fig. 26. — Distribution of the species of *Pentas*.

P. occidentalis (Hook. f.,) Benth and Hook. ex Hiern in Oliv. 1877	=	6b.
P. oncostipula K. Schum., 1904	=	31l.
P. parviflora Hiern, var. *nemorosa* Chiov., 1935	=	31j.
P. quadrangularis Rendle, 1896	=	*Conostomium quadrangulare* (Rendle) Cuf.
P. Quartiniana (A. Rich.) Oliv., 1873	=	31g.
P. Schimperi Hochst ex Engl., 1895	=	6a.
P. Schumanniana K. Krause, 1907	=	1b.
P. Schweinfurthii Scott Elliot, 1896	=	31a.
P. speciosa Baker, 1895	=	*Otomeria elatior* (A. Rich. ex DC.) Verdcourt, f. *speciosa* (Baker) Verdcourt.
P. Stolzii K. Schum. et K. Krause, 1907	=	28a.
P. Thomsonii Scott Elliot, 1896	=	6a.
P. transvaalensis Bar, 1923	=	20.
P. triangularis De Wild., 1914	=	14c.
P. verruculosa Chiov., 1940	=	31g.
P. verticillata K. Schum. ex Scott Elliot, 1896	=	14a.
P. verticillata K. Schum., var. *pubescens* Sp. Moore	=	14c.
P. volubilis K. Schum., 1897	=	*Otomeria volubilis* (K. Schum.) Verdcourt.
P. Warburgiana K. Schum., 1891	=	?
P. Woodii Scott Elliot, 1896	=	20.
P. Wyliei N. E. Brown, 1901	=	18b.
P. xanthorrhoea (K. Schum.) Brem., 1940	=	*Danais xanthorrhoeum* (K. Schum.) Brem.

Pentas pentandra (Schum. and Thonn.) Benth is mentioned in the Index Kewensis but the combination was not validly made. The plant is now known as *Pentodon pentander* Vatke.

Generic diagnosis.

Herbs or shrubs, biennial or perennial, erect or somewhat straggling in habit, sometimes sub-succulent. *Stems* solitary or caespitose from a fibrous or woody rootstock, mostly hairy. *Stipules* with a base apically divided into 2 - many segments tipped with colleters. *Leaves* very variable, ovate to lanceolate, sessile or petiolate, paired or in whorls of 2-5. *Flowers* small to very large, hermaphrodite mono-, di-, or trimorphic, geminate in usually much branched complicate cymose terminal inflorescences the individual branchlets of which are often somewhat spicate in fruit; pedunculate axillary inflorescences also occur at lower nodes in some species; pedicels mostly short. *Calyx* tube ovoid or globose adnate to the ovary save for a free apical annulus in some species; lobes normally 5 rarely

Fig. 27. — Distribution of the species of *Pentas*.

more, equal and subulate, or unequal 1-3 larger than the others often markedly foliaceous, subpersistent in fruit; between each pair of calyx lobes there are 1-3 sessile or stipitate glands. *Corolla* tube 2-160 mm long, from twice as long as broad up to about 40 times as long as broad, usually hairy outside; the throat is hirsute with long non-septate hairs; the rest of the indumentum on the plant nearly always consists of septate hairs. *Flowers* ♂ e : corolla tube gradually enlarged distally; filaments exserted adnate to the tube for most of their length, but raised and almost free in the basal papillate part of the tube where nectar is probably secreted; style and stigma completely or almost completely included. *Flowers* ♀ e : corolla tube abruptly enlarged apically into a cylindrical dilation containing the included anthers; style filiform exserted, glabrous or tomentose-roughened, divided apically into two branches, which bear stigmatic papillae, on their inner faces and on all of the outer faces with the exception of the median areas. *Corolla* lobes usually 5 ovate or oblong, usually margined glabrous or papillate inside, often hairy outside. *Stamens*-filaments are glabrous; anthers oblong or linear, thecae two, opening by longitudinal slits. Anthers affixed dorsally near the base or middle. *Ovary* bilocular, ovules numerous attached to semiglobose placentae which are affixed to the central partition. *Capsule* obtriangular or ovoid, ribbed, beaked, opening at the apex, the beak splitting into 4 valves, which are externally papillate; the capsule sometimes dehisces into two separate cocci but seed dispersal is effectively through the apical opening. *Seeds* minute, brownish, irregular globose, or tetrahedral, tests reticulate. Raphides are present in most of the tissues.

Species 34 with an additional 38 named infraspecific categories. Tropical Africa, Arabia, Transvaal, Comoro Islands and Madagascar. Chromosome number, x = 10 (Fagerlind, 9).

Geographical distribution.

The approximate distribution of the species is shown in Figs 26-29. At least 7 species occur in Madagascar two of these being represented on the mainland by different subspecies. One species occurs in the Comoro Islands and is but a variant of a common species occuring in the N. E. of the mainland. On the mainland the north-eastern limit is reached in Somaliland and Tropical Arabia, the north-western limit in Northern Nigeria, the south-eastern limit

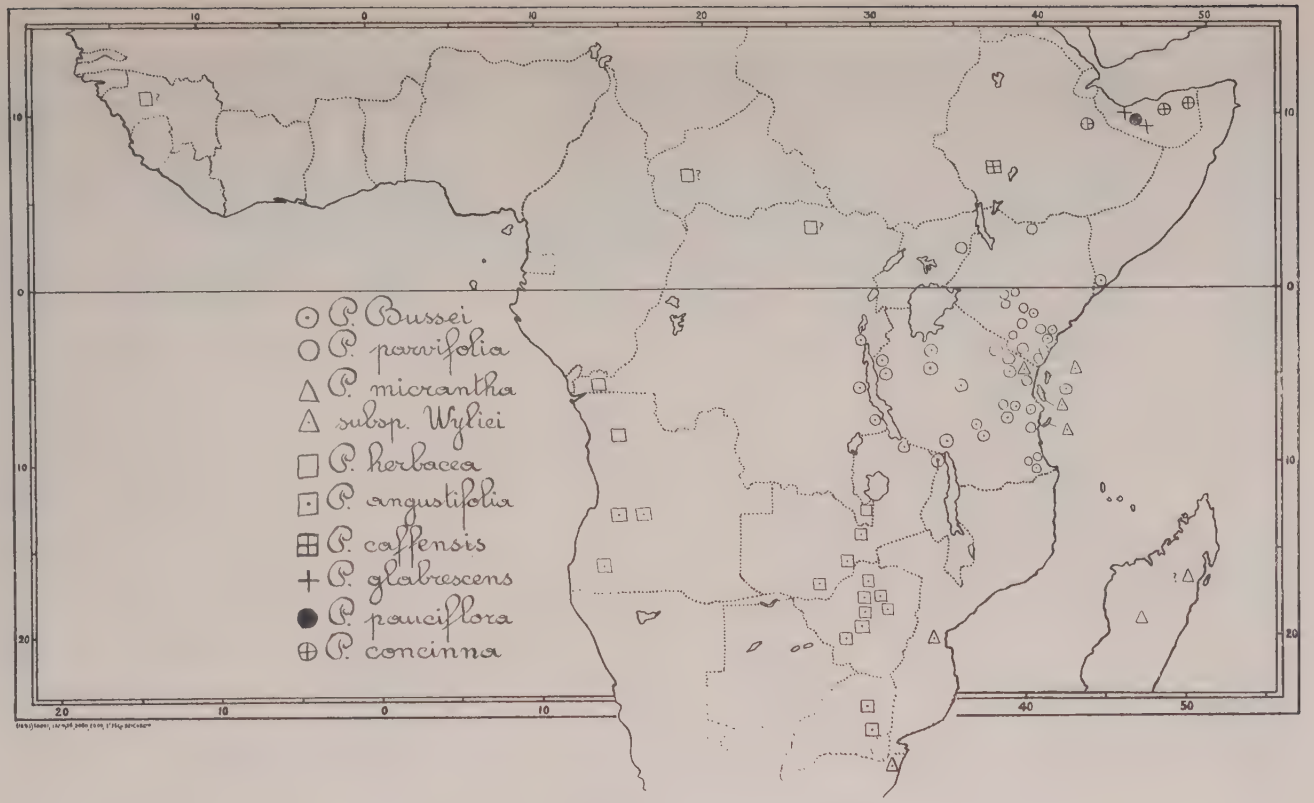

Fig. 28. — Distribution of the species of *Pentas*.

in the Transvaal and Zululand and the south-western limit in Namaqualand. The genus is most developed in the region of the great Lakes and in Tanganyika.

Subdivisions of the genus.

The genus is divisible into a number of subgenera and sections. Some of the subgeneric groupings which have been employed would doubtless be considered of generic standing by many workers but such disagreement about the status of groups is unavoidable and of little importance. The subgenus *Phyllopentas* is characterised by the peculiar enlargement of some calyx lobes into thin membranous laminae as in many *Mussaenda* species. The subgenus *Vignaldiopsis* contains species with equal linear calyx lobes, emphasised venation and indumentum characters. Species with large flowers, semisucculent stems, etc. have been placed in subgenus *Megapentas*. The subgenus *Chamaepentadoides* has been erected for a species with a small inflorescence and a tendency for the calyx lobes to become spathulate. It is directly related to a new genus *Chamaepentas* BREM. The subgenus *Longiflora* contains species with equal deltoid calyx lobes, a tendency to verticillate leaves, and a characteristic style indumentum. The remainder of the species have been put in the subgenus *Pentas* s. s. with five sections. The species all have similar unequal calyx lobes.

Relationships between the species.

It is frequently easy to see relationships between species and groups but difficult to indicate the direction of evolution. Some of the customary criteria which have been employed e. g. a spike is more primitive than a head — are not of very much value. Whole systems of classification are based on such slender evidence. Evidence of phylogeny based on distribution is also suspect and is affected by dispersal mechanisms. Recent studies on Compositae (Babcock) have shown that the classical age and area theory does not always hold true for genera which have very efficient dispersal mechanisms. The fruits of *Pentas* merely scatter the seeds in the immediate vicinity of the parent plant and the efficiency is probably roughly the same for all the species. In the case of *Pentas*, in fact the whole of the *Hedyotideae*, the age and area theory is probably of some value. It does not however help much since evolutionary changes take place in a small area and a widespread

Fig. 29. — Distribution of the species of *Pentas*.

distribution is gained by subsequent dispersal. It is valuable to know however whether this dispersal happened recently or in the past, and in *Pentas* it may be assumed that a widespread distribution indicates a dispersal which occurred some time ago, but it must be remembered that a very local species may be equally ancient in origin but either has never spread at all or is now only left in relict patches. The subgenus *Phyllopentas* is very local on the mainland and occurs only in parts of Tanganyika, but it also occurs in Madagascar and must be derived from some ancestral stock present when Madagascar was united to the Mainland which it was during the Oligocene and the Eocene (1). The most widely distributed species on the mainland are *P. Schimperiana (Vignaldiopsis)* which is distributed on many old mountain systems, *P. decora (Longiflora)* and *P. purpurea (Pentas)* which are very widely distributed in grasslands. The *P. arvensis - P. cleistostoma* group is also very widely distributed. The antiquity of these species which are just showing the start of local speciation to form subspecies, shows that many of the subgenera of *Pentas* were distinct a long while ago. In East Africa where geological changes have perhaps been more violent, and local isolation more liable to occur, the genus has developed numerous forms, but in West Africa very few new species have appeared. It is likely that *Vignaldiopsis* and *Phyllopentas* are closely related despite the strong calyx differences and the fact that only at the northern end of L. Nyasa do their distributions overlap.

In the evolutionary tree (Fig. 30) only morphological evidence has been employed together with assistance from the distribution and ecology of the plants. One can follow down the chart from any species to the start of the branch to which it belongs but what characters the original species had in common with the recent ones and which recent ones approximate most closely to them can only be surmised since there is of course no fossil evidence. Those species with lines running vertically beneath them are considered to have changed but little in the time which the line represents. This as been deduced mainly from distribution evidence.

KEY TO SOME OF THE AFRICAN HERBACEOUS RUBIACEAE.

Several genera of herbaceous Rubiaceae have been included in the following key in order to make it of use in separating them out

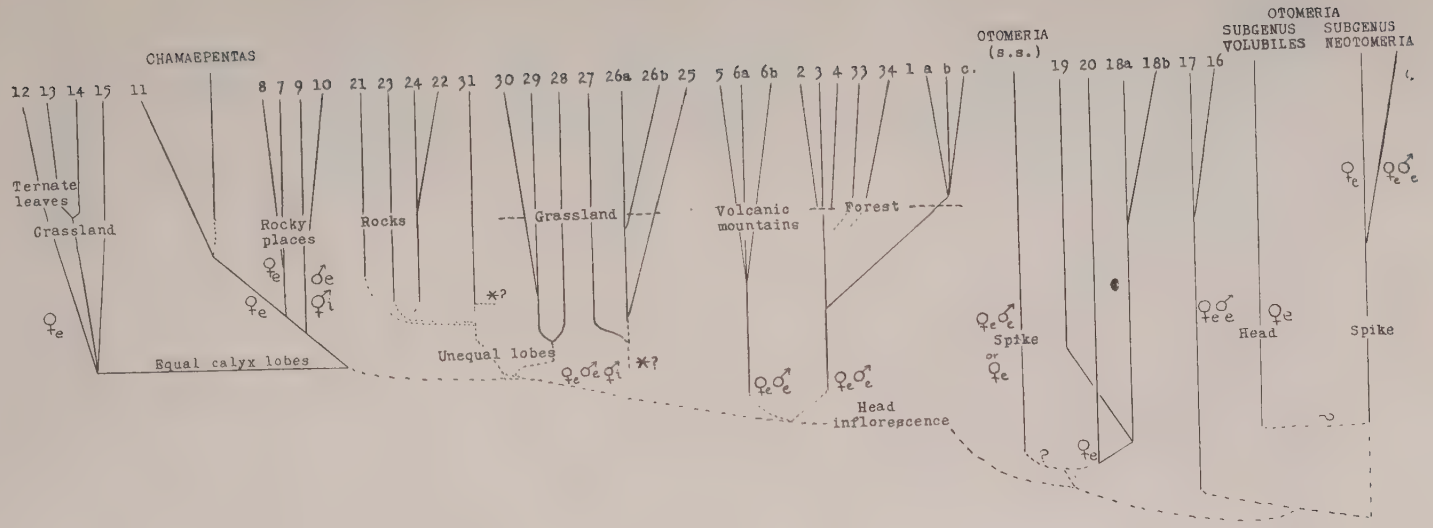

Fig. 30. — Relationships between the species of *Pentas* (numbers refer to the check list; for symbols see introduction).

according to the most recent conceptions. In existing keys most of these genera are separated on purely illusory characters. Careful observations on the position and number of the ovules is of the utmost importance. Numerous species have been described in the wrong genera and several quite mythical genera erected by competent botanists due to mistakes of this kind. The ovary is unfortunately minute and a placenta covered with ovules can appear to be « one ovule » under a low magnification. Another important character is the nature of the calyx lobes. *Pentas* is often separated out by being said to have unequal foliaceous lobes, but in truth whole sections of the genus have equal subulate lobes. The terms used to explain the shape of the calyx lobes are defined by reference to the figures as follows :

Calyx lobes linear, subulate — fig. 32 f.

Calyx lobes deltoid — fig. 32 c.

Calyx lobes foliaceous — fig. 34 b.

Calyx lobes enlarged into a lamina — fig. 31 a.

Calyx lobes spathulate — fig. 32 e.

A. Ovary 3-5-locular; ovules solitary pendulous . . . . . *Pentanisia* Harv. (incl. *Holocarpa* Bak. and *Pentacarpaea* Hiern).

B. Ovary 1-3-locular; ovules solitary or numerous; if ovary 3-locular then ovules solitary and attached by middle :

I. Ovary with one locule; ovule solitary pendulous . . . . . *Calanda* K. Schum. (= *Otocephalus* Chiov.).

II. Ovary 2-3-locular; ovules solitary or numerous :

a. Ovules solitary :

1. Ovules pendulous :

α. Annual herbs; fruit consisting of two globose lobes, warted and resembling half the fruit of a *Cynoglossum* . . . . . *Neopentanisia* Verdcourt.

β. Usually perennial herbs; fruit not consisting of two warted lobes . . . . . *Pentanisia* Harv. (incl. *Paraknoxia* Brem.).

2. Ovules not pendulous :

α. Ovules erect . . . . . *Otiophora* Zucc.

β. Ovules attached to central partition :

★ Ovary 3-celled. Stigmas 3 . . . . . *Richardia* L.

★★ Ovary 2-celled. Stigmas 2 :

△ Fruit circumscissile, a pyxidium opening by a lid . . . . . *Mitracarpum* Zucc.

△△ Fruit opening by longitudinal splits :

+ Capsule opening from base to apex . . . . . *Hypodematium* Rich. (? = *Staelia* C & S).

++ Capsule opening from apex to base or fruit separating into two cocci :

* Inflorescence terminal, branched, branches separate, fruit compressed ribbed with one valve dehiscent . . . *Neobaumannia* Hutch. & Dalz.

** Inflorescence consisting of dense terminal involucrate heads or axillary clusters :

Ø Fruit with both cocci dehiscent :

× Calyx 4-8-toothed; flowers mixed with filamentous bracts in involucrate capitula . . . . . *Octodon* Thonn.

×× Calyx 4-toothed, flowers not mixed with bracts . . . . . *Borreria* Mey.

ØØ Fruit with one or both of the cocci indehiscent :

× One coccus dehiscent and one not . . . . . *Spermacoce* Dill.

×× Both cocci indehiscent . . *Diodia* Gronov.

b. Ovules numerous :

1. Fruit with one valve remaining attached by a pedicle, the other deciduous. Stigma capitate . . . . . *Virectaria* Brem.

2. Fruit dehiscing differently. Stigma lobed :

α. Flowers mainly tetramerous, mostly small (save *Conostomium*); leaves mostly small . . . . . *Oldenlandia* L. and segregate genera by *Bremekamp*.

β. Flowers mainly pentamerous, leaves mostly larger and flowers larger :

★ Creeping prostrate herbs with small inflorescences, or small herbs of the forest floor, or climbers with corolla under 15 mm long :

△ Leaves small, uninerved; scrambling plant with small white flowers in lax axillary cymes . *Pentodon* Hochst.

△△ Leaves larger, penninerved; flowers not in lax axillary cymes :

+ Placentae linear elongated; fruit linear; corolla infundibuliform . . . . . *Dolichometra* K. Schum.

++ Placentae more or less globose; fruit globose; corolla tube cylindrical :

* Seeds winged, climbing plant . . . . . *Danais* Comm. ex Vent.

** Seeds not winged climbing or creeping plants :

Ø Climbing plants . . . . *Sacosperma* Tayl.

ØØ Creeping plants, or mat herbs of the forest floor rooting at nodes :

× Calyx lobes conspicuously spathulate at their apices. Corolla tubes ± 3 cm long . . . *Chamaepentas* BREM.

×× Calyx lobes not so spathulate. Corolla tube under 2 cm long :

† Inflorescence few-flowered usually only one corolla opened at a time. Flowers sessile in the axils . . . . . *Parapentas* BREM.

†† Inflorescence with more numerous flowers. Flowers terminal, laxly arranged when mature . . . . . *Tapinopentas* BREM.

★★ Erect herbs or shrubs, or if climbers then flowers exceeding 15 mm long :

△ Truly scandent plant. Corolla crimson-scarlet, tube over 20 mm long . . . . . *Otomeria* BENTH. (*O. volubilis* VERDCOURT).

△△ Erect or very weakly scandent :

+ Inflorescence consisting of long branched or unbranched spikes from middle axils. Flowers minute . . . *Hekistocarpa* HOOK. f.

++ Inflorescences chiefly terminal, or if axillary confined to upper axils or composed of solitary or paired flowers :

* Flowers solitary or paired in middle and upper axils. Herbs with shoots from a woody base . . . . *Batopedina* VERDCOURT.

** Flowers in terminal inflorescences with or without additional solitary flowers in the lower axils :

Ø Flowering inflorescence capitate later elongating into a long simple ' spike ', rarely with axillary ' spikes ' from upper axils and frequently with solitary flowers at lower nodes. Fruits oblong (see also *Pentas herbacea*) . . . . . *Otomeria* BENTH.

ØØ Flowering inflorescence capitate or lax, much branched, complicate-cymose, individual branches sometimes becoming spicate in fruit. Fruits globose or obtriangular . . . . . *Pentas* BENTH.

KEY TO THE SUBGENERA AND SOME ANOMALOUS SPECIES OF *PENTAS*.

A. Corolla tube minute, 2-2.5 mm long. Madagascar . . . 32. *P. decaryana*.

B. Corolla tube at least 4 mm long :

I. Calyx with one or two lobes in the majority of flowers enlarged into a white stipitate membranous lamina . . . . . *Phyllopentas*.

II. Calyx lobes often foliaceous but then green and never enlarged into a stipitate lamina :

a. Calyx lobes flat, foliaceous or deltoid nearly always 1-3 enlarged and the rest much smaller :

1. Corolla tube 6.5-16 cm long :

α. Flowers in ± 3-flowered cymes, inflorescence composed of about 3 cymes. Somaliland . . . . . 23. *P. pauciflora.*

β. Flowers more numerous. Tanganyika etc. (placed here in case calyx lobes incorrectly examined) . . . . *Megapentas.*

2. Corolla tube under 6.5 cm long :

α. Enlarged calyx lobes spathulate narrowed at the base. Corolla tube 3.5-4.5 cm long. Inflorescence of a few 3-flowered cymes . . . . . *Chamaepentadoides.*

β. Enlarged calyx lobes ovate, elliptic etc but not spathulate. Flowers much smaller or more numerous . . . . . *Pentas.*

b. Calyx lobes subulate, or linear subequal :

1. Leaves in whorls of 3-5 or if paired then plant a short pyrophyte about 16 cm tall . . . . . *Longiflora.*

2. Leaves paired. Plant never a short pyrophyte :

α. Corolla tube 2.5-16 cm long, in the smallest flowered species the leaves being linear-lanceolate :

★ Calyx lobes usually over 1 cm long or if shorter, then corolla lobes 1.5-2 cm long and 0.5-1 cm broad . *Megapentas.*

★★ Calyx lobes under 1 cm long (usually under 0.7 cm long); corolla lobes oblong up to 1.25 cm long and 0.25 cm wide :

△ Stipular setae noticeably capitellate; petioles up to 1 cm long. Corolla tube 3.75 cm long gradually widened from base to throat. Inflorescence lax about 15-flowered . . . . . *Chamaepentadoides.*

△△ Stipular setae obscurely capitellate; petioles short. Corolla tube abruptly expanded just below the throat. Inflorescence often many-flowered . . . . *Longiflora.*

β. Corolla tube 0.5-2.5 cm long, in the largest-flowered species the leaves being large and oblong :

★ Shrubs or tall herbs with a rufous indumentum *(in sic.)*. Calyx lobes equal subulate. Leaves with numerous lateral nerves and a characteristic reticulate venation beneath . . . . . *Vignaldiopsis.*

★★ If calyx lobes are not subulate but still approximately equal and the other characters do not agree, Vide . *Pentas.*

ENUMERATION OF THE SPECIES.

Most of the specimens seen have been cited in the list of exsiccatae, and in order to save space only a few specimens are cited

in full in the case of common species. Preference has been given to specimens which are accompanied with descriptive notes.

Subgenus **Phyllopentas** VERDCOURT, subgen. nov.

Frutices vel suffrutices. Folia membranacea longe petiolata. Calycis lobi 5 subaequales vel unus saepius in laminam petaloideam stipitatam ovatam productus. Flores dimorphi. (G. — *P. mussaendoides*.

Species 6 and 2 subspecies, Tanganyika and Madagascar. Mostly woodland species with ferrugineous or coloured indumentum in the dried state. See fig. 26.

Two species of this subgenus are left undescribed and noted at the end of this paper.

KEY TO THE SPECIES AND SUBSPECIES of *PHYLLOPENTAS*.

A. Short herbs, corolla tube 2-2.5 mm long . . . . . 32. *P. Decaryana*.

B. Taller herbs, corolla tube over 4 mm long :

I. Corolla tube 20-30 mm long :

a. Leaves discolorous felted below, foliaceous calyx lobes lanceolate or ovate-elliptic, eccentrically nerved . . . . . 2. *P. hirtiflora*.

b. Leaves not markedly discolorous, pubescent, foliaceous calyx lobes elliptic-oval . . . . . 3. *P. mussaendoides*.

II. Corolla tube 5-16 mm long :

a. Inflorescence lax in fruit :

1. Corolla tube about 5 mm long . . . . . 1b. *P. ionolaena* subsp. *Schumanniana*.

2. Corolla tube exceeding 5 mm in length :

α. Corolla tube about 16 mm long; leaves 8-15 × 4-6.5 cm . . . . . 1a. *P. ionolaena* s.s.

β. Corolla tube about 10 mm long; leaves 6.5 × 1.6 cm . . . . . 1c. *P. ionolaena* subsp. *madagascariensis*.

b. Inflorescence capitate in fruit . . . . . 4. *P. austroörientalis*.

1a. **Pentas ionolaena** K. SCHUM., Engl. Bot. Jahr., XXVIII, p. 487 (1900). — Fig. 31, C, D, & E.

P. Schumanniana Auct. non KRAUSE.

Herb, straggling and shrubby, from 1 to 3.5 m tall. *Stems* and peduncles covered with crisped violet or ferrugineous multicellular hairs; internodes 1.5-15 cm long. *Stipules* with 4-7 setae, which are filiform, pubescent, and capitellate, 6-10 mm long from a short

base. *Leaves* elliptic to oblong-ovate, acuminate apically, narrowly cuneate or very rounded at the base, petiole 2-3 cm long; lamina very thin, dark greenish-black, 8-15 cm long and 3.7-6.5 cm broad, hairy above and on the venation below; main lateral nerves 8-12, the tertiary venation obscurely reticulate below. *Inflorescence,* lax, trichotomous, about 9 cm long and wide, branched, pedunculate or sessile, with filiform bracts ± 10 mm long scattered on the branches. *Calyx* lobes very unequal, the foliaceous one white, elliptic to rounded-ovate, mucronate or acuminate, membranous and markedly venose, lamina 7-13 mm long and 3.5-9.3 mm wide, pubescent on the nerves, stipe 5 mm long; other lobes hairy, filiform 6-7 mm long, deltoid basally and slightly connate above the disc, coarsely reticulate. *Corolla* tube 12-14 mm long, white or mauve, pubescent, in macrostylous forms dilated at the apex to about 1.5 mm for a distance of 3-4 mm; lobes 2-4 mm long and 1.5 mm wide, pubescent externally particularly at the apices. *Anthers* narrow, 2 mm long. *Style* slender, exserted about 4 mm; stigmas thickened, 1-2 mm long. *Fruit* small, 2.5 mm long and 3 mm wide, ribbed, the beak a little raised, and the connate parts of the calyx lobes patent, forming a horizontal nervose flange: dehiscence entirely apical. *Seeds* about 0.5 mm long.

Tanganyika : Morogoro, moist shady forest, shrub 3-5 ft with white or mauve flowers, red petioles and stems, alt. 1400 m. Nov. 1935, *Bruce* 181 (Neotype) (K., EA.); 196 (K.); 623 (K.); Lukwangule Plateau, alt. 1300-2000 m, Nov. 1898, *Goetze* 253 * (T.) (B+); Morogoro, Urwald bachtal, Nebenwald, Kraut ± 1 m, in grosse Gruppe meist an feuchten stellen, Blüte weisslich lila, Scheinblüte weiss, alt. 1200-1300 m, Nov. 1932, *Schlieben* 2912 (B., S., BM.); Schlesien-Lugongo, Strauch 4 m, mit kleinen weissen Schaubblattern, alt. 1200-1500 m, March 1926, *Peter* 39157 (B.); Nienzema-Lukwangule Plateau, Morogoro, uncommon with *Pycnostachys, Impatiens, Pavonia, Sparmannia,* and *Begonia,* in *Dombeya, Hypericum, Afrocrania, Grumilia, Garcinia, Aphloia, Lachnopylis, Myrica* dry evergreen forest on a steep mountain slope; a straggling shrub up to 10 ft long with bright green leaves, white sepals, and pale violet almost white corollae, Aug. 1951, *Greenway* and *Eggeling* 8685 (EA.).

Observations. — 1. — I have not seen the type of this species but there can be no doubt as to the application of the name, even

though there is a discrepancy in the description. Schumann undoubtedly mistook the foliaceous calyx lobes for bracts, and apart from this the description fits perfectly. Moreover there is no other species in the Uluguru Mountains to which it could possibly apply. Owing to a mistake in Krause's description the name *P. Schumanniana* has been consistently applied to this plant.

2. — The typical form of this species is endemic in the forests of the Uluguru Mountains.

1b. **P. ionolaena** K. Schum. subsp. **Schumanniana** (K. Krause) Verdcourt comb. nov. — Fig. 31 F.

P. Schumanniana K. Krause, Engl. Bot. Jahr., XXXIX, p. 521 (1907).

Herb, shrubby, 2-2.7 m tall. *Stems* pale brown, woody, 4-5 mm in diam., with a bright rusty indumentum on the younger parts; internodes up to 13.5 cm long. *Stipules* with about 5 setae, up to 7 mm long from a very short base. *Leaves* ovate-oblong, shortly acuminate at the apex, and narrowly, often unequally cuneate at the base, petiole 1-4.5 cm long; lamina thin, 6.5-17 cm long and 4.2-7.7 cm wide, greenish or dark, with scattered hairs above, and on the 13-17 lateral nerves below. *Inflorescence* terminal together with axillary ones from the lower nodes, small and compact when flowering, 5 cm wide, but enlarging, up to 20 by 16 cm in the fruiting state; primary peduncles 7 cm long and secondary peduncles 5 cm long, the individual branchlets of the peduncle spicate and 9 cm long. *Fruits* geminate together with solitary ones at the bases of spikes, globose, 3 mm broad and 2 mm high, beak 0.7 mm tall; the base of the persistent calyx lobes has a net-veined pattern. *Seeds* reticulate, 0.5 mm in diam.

Tanganyika : Mahenge hochland, bei Kwa Amahita, domige Berghalde, Blütenfarbe violett, c. 1 m, alt. 1600 m, Jan. 1901, *Busse* 929 (T.) (B+., EA.). Kyimbila, bei Rungwe, Bl. hellila, alt. 1450 m, Oct. 1910, *Stolz* 365 (W., U., US., S., BM., K.); ditto, 1911, *Stolz* 706 (K., S., W., U.); ditto, alt. 700-800 m, Aug. 1912, *Stolz* 1511 (S., W., U., K.); Bulambya, Buschsteppe, alt. 1300 m, *Stolz* 188 (W., K., BM.); Tukuyu district, Rungwe slopes, frequent near streams at the edge of the forest, flowers white, alt. 1000-1500 m, March 1932, *Clair Thompson* 1302 (K.).

Observations. — 1. — Krause's description actually fits the typical Uluguru subsp., but an isotype is preserved and shows that the flowers are half the size he states. He possibly mixed some specimens.

2. — This subspecies, confined to the mountains of southern Tanganyika to the north of L. Nyasa and nearby, was formed by geographical isolation and is now rather distinct. Further work may show that it is a good species.

1c. **Pentas ionolaena** K. Schum. subsp. **madagascariensis** Verdcourt subsp. nov.; a *P. ionolaena* typica foliis minoribus, ellipticis angustis, glabrescentibusque, differt.

Herb ? Stems ferruginous pubescent when young, internodes 1-13.5 cm long. *Stipules* with about 5 setae up to 8 mm long. *Leaves* narrowly elliptic; lamina 6.5 cm long and 1.6 cm wide, with scattered hairs above and on the 9 lateral nerves below, the venation is dark and reticulate below; petiole 1 cm long. *Calyx* lobes unequal, the foliaceous one consisting of an oval prominently mucronate lamina 5-7.5 mm long and 3-5 mm broad, stipe 5 mm long, the rest setiform and 1-2 mm long. *Corolla* tube 8-12 mm long, lobes 2 mm long; both anthers and stigmas included in the form examined. *Fruiting inflorescence* lax, about 12 cm broad, branched, pedicels up to 4 mm long. *Capsule* shallowly bell-shaped, the rim depressed and ribbed, 3 mm tall and 4.5 mm broad, beak 1 mm tall, intravalvular opening 1.5 mm across.

Madagascar : North Madagascar s. l. *Baron* 6295 (T.) (K.); Cultivated at United States Field Station, Glendale, Maryland, from seeds collected at Mont D'Ambre, Diego Suarez, Oct. 1928, *Humbert* and *Swingle* 77945 (BM.).

Observations. — 1. — This subspecies is confined to Madagascar.

2. — When further material of this plant is available for study, it may be found to be a separate species. The scraps available have a scandent look.

2. **Pentas hirtiflora** Baker, Journ. Linn. Soc. Lond., Bot., XXII. p. 482, 1887.

Herb, shrubby about 70 cm tall. *Stems* branched, woody, brown, longitudinally rugose, bearing pale ferruginous hairs above; inter-

nodes 3-7 cm long. *Stipules* 1 cm long, fimbriated. *Leaves* oblong-elliptic, acute at the apex, cuneate at the base, subsessile or petiole 2-15 mm long; lamina very discolorous 5.5-10.5 cm long and 2-4 cm wide, with scattered short hairs above, densely felted below; main lateral nerves 11-13, venation not reticulate below. *Inflorescence* sessile, about 4 cm wide, consisting of terminal and axillary ones combined. *Calyx* hairy, tube 2.5 mm in diam., some calyces with 5 filiform equal lobes about 9 mm long or filiform unequal lobes 3-9 mm long, and others with 4 filiform lobes 9 mm long and 0.5 mm wide and one expanded to form a nervose, membranous lamina, lanceolate, caudate, 9-14 mm long and 3.7 mm wide, stipe 4 mm long and 1 mm wide; the midrib often eccentric. *Corolla* tube hairy 21-26 mm long, 0.5 mm wide at the base, dilated above to 1.5 mm for a distance of 5 mm, lobes 3 mm long. *Style* exserted 3 mm, stigmas 2 mm long. *Anthers* included, 2.5 mm long.

MADAGASCAR : Central Madagascar, s. l. *Baron* 4732 (T.) (K.); s. l. *Baron* 6203 p. p. (K., mixed with a sheet of *Ludwigia);* Mt Bevendro, herb to 70 cm, corolla violet, lobes white, Nov. 1932, *Leandri* 624 (P.).

Observations. — 1. — This species is confined to Madagascar, and no information is available on whether or not the flowers are dimorphic.

2. — This species is very little known. Baker did not mention the fact that some calyx lobes are enlarged, neither did he give the size of the flowers. Scott Elliot (15) compared it with his own *P. Thompsonii* but the affinity is obviously with *P. mussaendoides.*

3. **Pentas mussaendoides** BAKER, Journ. Linn. Soc. Lond., Bot., XX, p. 165 (1883). — Fig. 31 A & B.

Shrub or shrubby herb up to 5 m tall. *Stems* brown, 5 mm wide

Fig. 31. — *Pentas mussaendoides* BAKER : A, calyx (× 2.5) (from herb Tananarive 5-1); B, corolla (× 2.5) (from ditto); *P. ionolaena* K. SCHUM : C, hair from corolla lobe (× 70) (from *Bruce* 181); D, corolla (× 5) (from ditto); E, foliaceous calyx lobe (× 5) (from ditto); *P. ionolaena* K. SCHUM. var. *Schumanniana* (KRAUSE) VERDCOURT : F, corolla (× 5) (from type); *P. Schimperiana* (A. RICH.) VATKE : G, ♀ e flower (× 5) (from *Purseglove* 2494); H, gland from calyx (× 32) (from *Eggeling* 4088); I, ♂ e flower (× 5) (from ditto).

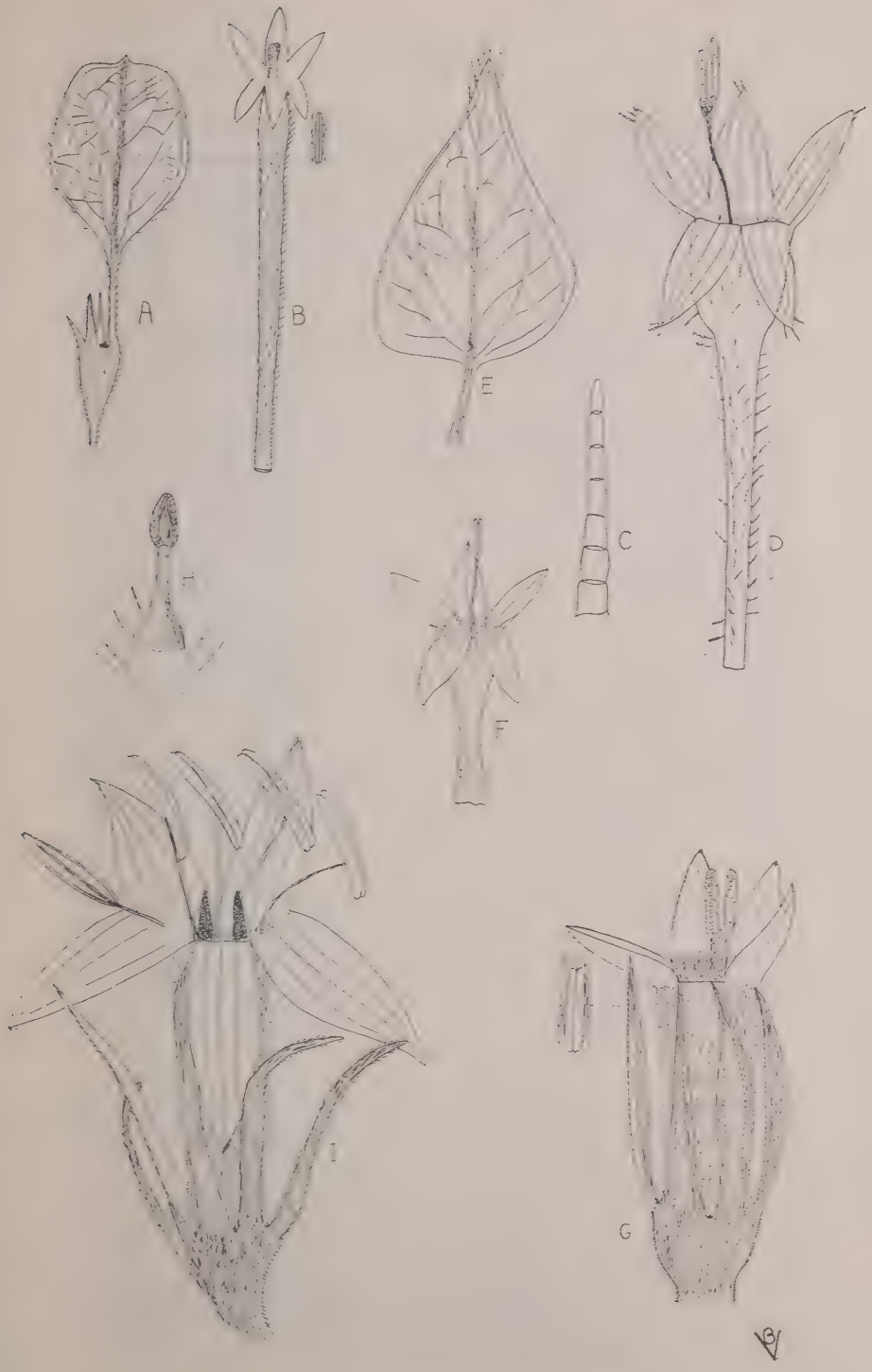

Fig. 31. *see explanation at bottom p. 258.*

at 40 cm below the inflorescence, strongly furrowed in the dry state, covered with crisped hairs, which are rusty red-brown above and at the nodes; internodes 2.5-7.5 cm long. *Stipules* with about 4 hairy capitellate setae up to 7 mm long from a base 1.5 mm long. *Leaves* elliptic to elliptic-oblong, sharply acuminate at the apex, acute at the base, petiole 1.5-3 cm long; lamina thin 11.5-13 cm long and 4.2-5 cm wide, acumen about 2 cm long, with recumbent hairs above and adpressed hairs below at right angles to the venation, denser and rustier on the younger leaves, costae often covered with rich rusty-red indumentum; main lateral nerves 10-13, arcuate, ascending, venation slightly prominent and reticulate above and below. *Flowers* geminate on very short pedicels in lax cymes, each branch somewhat spicate. *Calyx* lobes very unequal, one a membranous lamina 8.5-18 mm long and 6-11.5 mm wide on a stipe 5-7 mm long, broadly elliptic to oblong-elliptic, acuminate, pubescent on the main nerves, other lobes linear 4-8 mm long, connate at the base forming a short rim 2 mm tall above the disc. *Corolla* tube 22-26 mm long, hairy outside, lobes 5-6, 4 mm long and 1.6 mm wide, hairy outside and papillate inside. *Flowers* ♀ e : Anthers linear 2.6 mm long, tips 1.5 mm below the throat; style exserted 0.5-1 mm, stigmas thickish, elliptic, 1 mm long and 0.5 mm broad; the actual throat orifice is not hairy, but the hairs begin 2 mm below it and continue for about 2 mm, the rest of the tube being glabrous within; tube 1 mm wide at the base expanded apically to 2.25 mm for a distance of 5.5 mm. *Flowers* ♂ e : not observed; heterostyly possibly does not occur in this species. *Fruiting inflorescence* densely branched, branches spicate. *Fruits* oblong-obovate, prominently 10-ribbed, a little contracted above, about 11 mm long and 5.5-6.5 mm wide; beak small and scarcely raised; no longitudinal dehiscence occurs until complete disintegration sets in. *Seeds* very numerous small, 0.5 mm in diam.

MADAGASCAR : s. l., *Baron* 6985, 6988 (K.); s. l., *Lyall* 195 (lectotype) (K.); Toohimaniko Forest, *Forsyth Major* 26 (K.); Central Districts, *Baron* 370, 1059, 1921, 4718, 4849 (K., BM.); La Mandraka, June 1935, s. l. (Herb. Jard. Bot. Tananarive); Ost-Imerina, an fuss lichten Stellen in Urwald, suffr., Jan. 1881, *Hildebrandt* 3824 (K., BM., US., W.); Andrangaloaka, small forest trees to 5 m tall, Aug. 1881, *Parker* s. n. (K.); Ankeramadinika, forest, moist humus, *Scott Elliot* 1753 (K.); Ombohimitombo Forest, *Forsyth Major* 393 (K.).

Observation. — This species is confined to Madagascar where it occurs in the rapidly dwindling forests.

4. **Pentas austroörientalis** Homolle et Verdcourt sp. nov.: affinis *P. mussaendoidi* Baker, floribus minoribus in capitulis congestis differt.

P. mussaendoides Baker var. *austroörientalis Homolle* MS. in Herb. P.

Suffrutex ± 1 m altus, caulibus basi decumbentibus, ferrugineis hirsutis; internodia 1-7 cm longa. *Folia* lanceolata vel elliptica, acuminata, basi cuneata, ubique pubescentia ad 6.5-17 cm longa et 1.7-6.7 cm lata; petioli ± 2.5 cm longi; nervi laterales 10-13, subtus leviter prominuli. *Flores* albi vel violacei, dimorphi, in capitula terminalia usque 2 cm lata congesti. *Calycis lobi,* inaequales deltoidei 3-4 mm longi, vel unus saepius in laminam violaceam, orbiculari-ovatam, stipitatam, mucronatam, 3-5 mm longam et 4 mm latam, productus; stipes 3-4 mm longus. *Corollae tubus* 7 mm longus, lobi 2mm longi. *Capsulae* 5 mm longae et latae, in capitula dense congestae.

Corolla apically dilated in ♀ e flowers. *Capsules* obtriangular in compact heads resembling a head of *Hedera* fruits, beak a little raised.

Madagascar : Beampingaratra, S. E. vallée de Maloto, corolla violet, sepals white, 1928, *Humbert* 6255 (T.) (P.); ditto, Col Bevava, summit of Bekoho, alt. 1500 m, Nov. 1928, *Humbert* 6427 (P.); Fort Carnot, *Decary* 5751 (P.); Ivohibe Forest, shrub, corolla violet, bracts pale blue, *Humbert* 3165 (P.).

Observation. — This MS variety undoubtedly represents a new species which is not closely allied to *P. mussaendoides*. The smaller flowers in heads and smaller habit are distinctive.

Subgenus **Vignaldiopsis** Verdcourt subgen. nov.

Frutices vel suffrutices, pilis ferrugineis induti. Nervi laterales numerosi usque 22; venae et venulae reticulatae, sed haud prominulae. Flores albi vel albiduli, dimorphi. Calycis lobi subulati haud

foliacei, subaequales. Corollae tubus haud filiformis. (*G. P. Schimperiana*).

The inflorescence is much-branched and there is no trace of a spicate arrangement even in fruit.

Species 2 and 1 subspecies, West African mountains, S. W. Africa, Fernando Po, and E. Africa including Abyssinia; always on volcanic soil at high altitudes. See Fig. 26.

KEY TO THE SPECIES AND SUBSPECIES of *VIGNALDIOPSIS*.

A. Corolla tube 5-12 mm long :

I. Calyx lobes approximately equalling the corolla tube . . . . . 6a. *P. Schimperiana* s.s.

II. Calyx lobes one third to one half the length of the corolla tube . . . . . 6b. *P. Schimperiana* subsp. *occidentalis*.

B. Corolla tube 15-23 mm long . . . . . 5. *P. elata*.

5. **Pentas elata** K. SCHUM. apud ENGL., Pflanz. Ost-Afr., C, p. 377, (1895).

Shrub to 5 m tall. *Stems* sparingly branched, with traces of rusty pubescence. *Stipules* with about 9 setae ± 6 mm long from a base 3 mm long. *Leaves* elliptic, shortly acuminate, cuneate at the base, petiole 1-2 cm long; lamina 8-16 cm long and 3-6.5 cm wide, sparingly pubescent above when young, later glabrous save for a few hairs on the basal half of the costa, sparsely hairy below on the nerves; lateral nerves about 16, tertiary venation reticulate. *Calyx* tube 1.5 mm long, lobes subequal, subulate, 6 mm long. *Corolla* tube white, 15-23 mm long, lobes 5-6 mm long and 1.5 mm wide. *Stamens* exserted in ♂ e form (the only form seen), anthers 2 mm long. *Style* 12-20 mm long stigmas flattened, 3 mm long. *Capsule* pluricostate 5 mm long and wide, beak elevated, hairy.

TANGANYIKA : Himo, 4-5 m hoher Strauch in Hochwalde, alt. 2800 m, *Volkens* 1822 (T.) (B+., BM.); Reise nach dem Kilimanscharo und Meru, im steilen Nachtalchen, 4 m hoher Strauch mit weiss Bluten, alt. 2800 m, Nov. 1901, *Uhlig* 1064 (EA.).

Observation. — This species is apparently rare and virtually unknown, although described many years ago from an area by no means neglected by botanical collectors. An isotype exists in the BM. and, together with a specimen collected somewhere near the type locality, forms the basis of my knowledge of this plant. This species, which appears to be a very localised form derived

from ancestral *Vignaldiopsis* stock, is closely related to the next species and needs recollecting.

2. — In his description K. Schumann gives the length of the corolla tube as 25 mm which agrees well with the Uhlig specimen but the isotype has a tube only 15 mm long. He also states that the leaves are sessile and that the capsule is bicostate.

6a. **Pentas Schimperiana** (A. Rich.) Vatke, Linnaea, XL, p. 192 (1876); Hiern apud Oliv., Fl. Trop. Afr., III, p. 45 (1877); Krause, Notiz. Bot. Gart. Berlin., X, p. 602 (1929); Robyns, Flore Spermat. Parc. Nat. Albert, II, p. 327 (1947). — Fig. 31, G, H, & I.

Vignaldia Schimperiana A. Rich., Tent. Fl. Abyss., I, p. 359 (1847).

Pentas Thomsonii Scott Elliot, Journ. Linn. Soc. Lond., Bot., XXXII, p. 435 (1896).

Neurocarpaea Thompsonii Sp. Moore, Journ. Linn. Soc. Lond., Bot., XXXVII, p. 157 (1905).

Mussaenda Schimperi Hochst., MS. in Pl. Schimp. Abyss.

Pentas Schimperi Engl., Pflanz. Ost-Afr., A, p. 92 (1895).

Shrub 1.5-2.7 (-5) m tall. *Stems* terete, blackish or purplish-brown, woody, more or less wrinkled and rugose longitudinally, densely rusty pubescent above, glabrescent below, 5 mm in diam., 20 cm below the inflorescence; pedicels and peduncles velvety rusty pubescent, but pallid in living plants; hairs of about 7 cells with slightly pitted walls; internodes 1-6 cm long. *Stipules* large, with about 6-10 linear-lanceolate, brown, hairy, setae 2-11 mm long from a variable base 4-8 mm long and 5 mm broad; stipule bases connate to the petioles, forming subpersistent cups at the nodes on old stems; setae often reflexed and the upper stipules often completely bifid with two sets of setae. *Leaves* ovate, ovate-lanceolate or ovate-oblong, acute or acuminate at the apex, cuneate or rounded basally, petiole 2-5 mm long; lamina 8.5-15.5 cm long and 3-5 cm broad, with adpressed rusty hairs above and on the venation below, lateral nerves 12-22, a little prominent below, the tertiary venation characteristically reticulate, the veinlets appearing

black on a brown background, glabrous and not raised. *Inflorescences* branched 3-9 cm across, peduncles up to 1.5 cm long; secondary peduncles about 6 mm long; axillary inflorescences (if present) with peduncles 2-8 cm long. *Flowers* geminate, on a common pedicel 2-3 mm long; inflorescence branches and flowers subtended by linear bracts 3-10 mm long and 0.5 mm wide, resembling stipular setae. *Calyx* tube hairy, 1.5-2.5 mm long and wide, lobes subequal, linear, flat, 3-10 mm long and 1 mm wide, hairy outside and glabrous within; disc pubescent. *Flowers* ♀ e : corolla tube glabrous or hairy, infundibuliform, 5-7 mm long, 1.3-2 mm wide at the base, 0.5 mm wide at the middle, and dilated to 2-3 mm wide for the apical 2 mm, lobes sparsely hairy outside, minutely roughened within, tips thickened, inflexed, 3-4 mm long and 1.5-2 mm wide; throat densely white-hairy, basal 3 mm of tube glabrous within; style roughened, exserted for 0.5-5 mm, stigmas 1.5-2 mm long; anthers 2.5 mm long and 0.7 mm wide, just exserted 0.75 mm. *Flowers* ♂ e : corolla tube cylindric 5-10 mm long, hairy outside, lobes 3-7 mm long and 2-2.5 mm wide; anthers 2.5-3 mm long, filaments exserted 2-3 mm; throat hairy, tips of stigmas just exserted. *Fruiting inflorescence* cymose, lax trichotomous, reaching a total breadth of 25 cm, pedicels 5-17 mm long. *Capsules* paired, brown, 9-10 costate, pubescent 5-5.5 mm long and 4-4.5 mm broad; persistent calyx lobes often reflexed, intravalvular opening about 1 × 0.5 mm; there is rarely complete dehiscence into two cocci, but only a slight longitudinal splitting along the ovary partition, which does not extend across the apical flange or rim formed by the bases of the calyx lobes; in very old fruits the ribs separate from the pericarp; inner walls of the capsule smooth and shining. *Seeds* ovoid, small reticulate.

Abyssinia : Mt. Scholoda, in rocky declivities, Oct. 1837, *Schimper* 38 (P., K., W., etc.); ditto, north side, *Schimper* 916 (P., K., W., etc.); Tigré, Simajata, *Schimper* 513 (S., etc.); Northern slopes of Mt. Aber above Dschenausa, Jan. 1840, *Schimper* 838 (P., W., etc.); Chiré, Aug., *Quartin Dillon* 126 (lectotype) (P.); Ankober, alt. 3000 m, Dec. 1923, *Harlan* 1029904 (US.).

Uganda : Ruwenzori, Bwera straggling undershrub to 5 ft, flowers white, alt. 2500 m, Oct. 1940, *Eggeling* 4088 (EA., ENT.); Kigezi, Bukimbiri, in hillside scrub, undershrub to 4 ft, with pinkish flowers, alt. 2000 m, Oct. 1947, *Purseglove* 2494 (K., EA., KAW.);

Mt. Elgon, bamboo zone, shrub to 10 ft, flowers white, Jan. 1918, *Dummer* 3613 (BOL.).

Kenya : Laikipia plateau, *Thomson* s.n. (T. of *P. Thomsonii*) (K., BM.); Cherangani Hills, in half forest shade or scrub, shrubby herb to 8 ft, corolla tube whitish, lobes pinkish, alt. 2500 m, Sept. 1934, *Dale* 3266 (EA., K.); Mt. Elgon, shrub to 4 ft, flowers white, tinged with pink, alt. 3000 m, Dec. 1930, *Lugard* 407 (EA., K.).
Specimens have also been seen from the Mau, Nandi Hills, Elgeyo Escarpment and Gilgil.

Tanganyika : Rungwe District, Lower fishing camp, Kiwara River, on a river bank with *Phragmites, Myrica, Maesa, Solanum* and *Euphorbia* on yellow-brown volcanic soil, perennial herb to 4 ft with very pale pink flowers, calyx and buds pinkish crimson, alt. 2000 m, Aug. 1949, *Greenway* 8406 (EA., K., PRE.); Mporoto Mountains, seen on volcanic soil only, soft bush to 4 ft with white flowers, calyx and rachis of inflorescence reddish or red tinged, alt. 2300 m, May 1951, *Eggeling* 6115 (EA.); Kyimbila, Rungwe, 4 m hoch, Blth. weiss, Kelchbluth. rotgrun, alt. 1450 m, Oct. 1910, *Stolz* 366 (S., W., U., US., K., BM.); specimens have also been seen from Ukinga and Ubena, and other places in the Njombe District.

Belgian Congo : Lava Plains between Lake Edward and L. Kivu, subshrub 1 m tall with white flowers tinged with pink, anthers violet, alt. 1460-2000 m, April-May 1929, *Humbert* 7871 (BR.); Between Rumoka and Sake, dunes of lava cinders from the 1904 eruption, shrub 1.5-3.5 m tall, buds reddish, corolla white, anthers violet, in thickets with *Rumex maderensis, Rhus, Faurea, Helichrysum,* and *Myrica salicifolia,* alt. 1470 m, Aug. 1937, *Louis* 4877 (BR., K., EA.); Nyiragongo, alt. 3000 m, Dec. 1911, *Fries* 1668 (UPS., determined as *Pentas zanzibarica* by Krause); Lake Kivu, Sake, shrub, April 1938, *Evans* and *Erens* 1806 (US., PRE), N. O. Kivu Im Mkunga Tal bei Ruasa, alt. 1800 m, Nov. 1907, *Mildbraed* 1775* (B+.); entre Lulenga et Sake, plaine de lave, alt. 1750 m, Févr. 1932, *Lebrun* 5017 (BR.); Rumoka, brousse maigre sur lave récente, coulée 1912, fleurs blanches, Nov. 1932, *van Roechoudt* 9 (BR.); ditto, plante herbacée 1.50 m haut, assez commune, fleurs crème, pédoncule rougeâtre, Avril 1937, *Ghesquière* 4308 (US., BR.); Gahojo, près N'Zulu, alt. 1460 m, Févr.

1934, *de Witte* 1400 (BR.); ditto, fleurs roses extérieurement, blanches intérieurement, étamines violettes, Août 1937, *Lebrun* 6955 (BR.); entre Kingi et Nyefunze, alt. 1850-2050 m, Oct. 1937, *Lebrun* 7823 (BR); Nyiragongo, magnifique sous-arbrisseau de 7-10 dm, fleurs saumon, Oct. 1907, *Mildbraed* 1292* (B+.); Kibati-Kibumba, 1929, *Scaetta* 1514; 1547 (BR.); ditto, forêt sur plaine de lave, Jan. 1934, *de Witte* 1244 (BR.); Kikomero, alt. 1850 m, Nov. 1937, *Lebrun* 8451 (BR.); Tshumba, alt. 1700 m, Avr. 1934, *de Witte* 1619 (BR.); Nyiragongo, versant sud, forêt de l'étage subalpin, alt. 3000 m, Août 1911, *Meyer* 856 (BR.); Sabinyo et Gahinga, prairie de montagne dans la forêt de bambous, alt. 2700 m, Nov. 1937, *Mildbraed* 1681* (B.+); Kamatembe, lave ancienne, alt. 2100-2300 m, Avr. 1934, *de Witte* 1564 (BR.); Vallée de la Butahu, alt. 2500 m, Févr. 1908, *Mildbraed* 2623* (B.+); ditto, Avr. 1914, *Bequaert* 3729 (BR.); ditto, Juill. 1929, *Humbert* 8858bis (P., BR.); Kalonge, Pteridietum et forêt claire, Juill. 1929, *Haumann* 221 (BR.); Vallée de la Ruanoli, alt. 1900 m, Mai 1914, *Bequaert* 4432 (BR.),; Lulonga, *Linder* 2208 (K.); Mt. Adjo, S. E. de Nioko, *Taton* 550 (BR.).

Nyasaland : Nyika Plateau, *Brass* 17247 (K., NY.).

Observation. — This well-marked species is widely distributed in E. Africa from Abyssinia to Nyasaland on lava soils, particularly along the rift valleys. It reaches altitudes of 3000 m. Robyns states that it also occurs in Southern Arabia, but although its occurrence there would not be unexpected, no specimens have been seen.

6b. **Pentas Schimperiana** (A. Rich.) Vatke. subsp. **occidentalis** (Hook. f.) Verdcourt comb. nov.

Vignaldia occidentalis Hook. f., Journ. Linn. Soc. Lond., Bot., VII, p. 197 (1864).

Pentas occidentalis (Hook. f.) Benth. and Hook. ex Hiern, apud Oliv., Fl. Trop. Afr., III, p. 46 (1877);K. Schum. apud Henriq., Bol. Soc. Brot., X, p. 126 (1893) and XXVII, p. 196 (1917); A. Chev. Sudania, II, p. 47 & 53 (1914); Krause in Mildbr., Wiss. Ergebn. Deutsch. Zentr.-Afr.-Expn. 1907-8, II,

p. 311 (1911); G. Taylor apud Exell, Vascular Plants of St. Tomé, p. 217 (1944).

Pentas Ledermannii Krause, Engl. Bot. Jahr., LVII, p. 25 (1920).

Subshrub 1.3-3.3 m tall. *Stems* ferruginously hairy, internodes 8-15 mm long or longer. *Stipules* with about 6 setae, 7-15 mm long from a sheathing base 5 mm long. *Leaves* ovate-elliptic, rounded or cuneate at the base, acute at the apex; petiole 0-1.5 cm long, lamina hairy, 8-15 cm long, and 3-6.3 cm wide; lateral nerves 12-15, venation characteristically reticulate below. *Inflorescence* an ample panicle 6-15 cm broad. *Calyx* lobes subequal, subulate, or deltoid 3-9 mm long. *Flowers* ♀ e : corolla tube 9-13 mm long, 1.5 mm broad, glabrescent or matted tomentose outside, lobes 3.6 mm long and 0.75 mm wide, stigma thick, very papillate, 2.5-5 mm long. *Flowers* ♂ e : corolla tube 10-14 mm long, 2.25 mm broad, hairy outside, lobes 3 mm long and 1.5 mm wide, anthers 2.8 mm long, filaments exserted for 0-1.5 mm. *Fruit* 4-6 mm tall and broad, flange at the top and persistent calyx lobes net-veined; beak prominent, 1.25 mm high; intravalvular opening 2 mm long and 1.5 mm wide.

Fernando Po : Sine loco, alt. 2800 m, *Mann* s.n. (lectotype) (K.).

S. Tomé : Mountain Range, E. of Pico, alt. 1700 m, *Quintas* 1368 (COI.); between Monte Café and Pico, *Chevalier* 14276 (P.).

Cameroons : Cameroons Mt., small shrub, 3-4 ft tall, alt. 2300 m, 1862, *Mann* 1993, 1227 (K.); ditto, Feb. 1927, *Dalziel* 8306 (US., K.); ditto, alt. 2000 m, June 1891, *Jungner* 29, 157 (UPS.); Bamenda, Banso in fuel plantation, dense communities on the banks of R. Mela, tall shrubby plant, stems brownish near base, stipules green turning brown when old, under surfaces of the leaves covered with fine white hairs, flowers tan-coloured, Oct. 1947, *Tamajong* 23462 (FHI.); Victoria, Cameroons Mt. S. W. of hut n° 2, gully woodland with *Hypericum lanceolatum* and *Philippia,* erect shrub to 2 m, midrib and calyx pinkish crimson, corolla tube white, lobes pink, alt. 2700 m, Jan. 1951, *Keay* 28595 (FHI., K.); Above Buea, sheltered site, in gulley grassland with *Philippia, Hypericum* and *Helichrysum*, shrub to 10 ft, tube striped pink outside, lobes white inside, calyx pink, sweet-smelling, alt.

3000 m, April 1946, *Dundas* 13944 (FHI.); Im lichten Gebirgsbusch der Bambutuberge, alt. 2200 m, Dec. 1908, *Ledermann* 1743* (lectotype of *P. Ledermanni*) (B.+); Im lichten Gebirgswald, bei Bagango, alt. 1700-1900 m, Oct. 1909, *Ledermann* 5857* (B.+); Im teileweise dichten Gebirgswald, Kongoa Gebirges, alt. 1600-1800 m, Nov. 1909, *Ledermann* 6045* (B.+).

Belgian Congo : Ituri Forest, *Humbert* 8857 (BR.).

Observations. — 1. — Hooker correctly indicated the affinities of this plant and the present new combination is merely a difference of opinion as to status. Although there are distinct differences between this subspecies and the typical one, nevertheless the characters vary, and moreover the West African form does occur on the extreme west of the area occupied by the typical form. These differences have clearly been produced by geographical isolation and it is well known that a very similar flora once stretched from Fernando Po to Uganda and innumerable plants are common to both areas. Krause points out that it is difficult to distinguish the two supposed species and G. Taylor records *P. occidentalis* from Uganda thus showing that he could not distinguish the two forms. The types of *P. Ledermannii* have been destroyed but from the description it seems to be only a form of the present subspecies. The flowers differ in having the corolla tube 7-8 mm long and the calyx lobes 1.5-2 mm long, and the leaves are larger. Further material from the type locality is required to check this.

2. — This plant is a characteristic plant of the Cameroons Mt. up to 3000 m alt. and also occurs on the islands which were almost certainly once part of the mainland. Some plants from the Ituri forest also appear to agree better with this subspecies.

3. — The following specimen cited below is too poor to identify with either of the above subspecies and further material is needed from the locality, which I have been unable to locate on the map. No other material has been seen from the area and there is of course the possibility that labels have been mixed.

South West Africa : Namaland, Koe Mountain, alt. 900 m, Oct. 1904, *Pearson* 056432 (U.). The leaves are rufous, 8.5 cm long and 2.5 cm broad, lateral nerves 13. No flowers present. Fruiting inflorescence dense 5 cm across. Fruits 3.5 mm wide and 4 mm tall, beak 1 mm high. It may be a new subspecies.

Subgenus **Megapentas** Verdcourt, subgen. nov.

Herbae vel suffrutices subsucculenti, perennes. Folia opposita, saepe magna, petiolata vel sessilia. Stipulae in fimbrias longas filiformes solutae. Calycis lobi subaequales, anguste spathulati, vel lineari-deltoidei haud foliacei. Flores albi praecipue, interdum dimorphi. Corollae tubus magnus usque 16 cm longus, lobi elliptici haud marginati. Stylus tomentosus. (G. *P. longituba*).

Species 4 and one subspecies, three confined to Tanganyika, the other distributed in Rhodesia and also occurring in Tanganyika and the Belgian Congo. Three of the species are very local and are probably relicts of a more widely distributed ancestral species. All occur on rocky hills. See Fig. 27.

Key to the subdivisions of the subgenus *Megapentas*.

A. Plant entirely glabrous save for the style and the throat . . . . . 10. *P. graniticola*.

B. Plant pubescent or hairy :

I. Leaves subsessile; lamina 9.5-21 × 3.5-7.4 cm, corolla tube 13-16 cm long, lobes 2-2.5 × 1 cm, free part of calyx tube in fruit 0.75 mm tall . . . 7. *P. longituba*.

II. Leaves petiolate, petioles 2-10 mm long; lamina 4-20 × 1.6-7.2 cm, corolla tube 9-13 cm long, lobes 0.9-1.8 × 0.4-0.8 cm; free part of calyx tube in fruit, 2-5 mm tall :

a. Calyx lobes narrowly linear; corolla tube 7.5-12 cm long, petioles 2-10 mm long, lamina 5-20 × 1.6-7.2 cm :

1. Leaves up to 14 cm long; stipular setae up to 12 mm long . . . . 9a. *P. nobilis*.

2. Leaves up to 20 cm long; stipular setae up to 20 mm long. . . . . 9b. var. *grandifolia*.

b. Calyx lobes mostly narrowly spathulate; corolla tube about 11 cm long, leaves with petioles 4-11 mm long, lamina 4-12 × 1.7-3.4 cm . . . 8. *P. pseudomagnifica*.

7. **Pentas longituba** K. Schum. ex Engl., Abh. Preuss. Akad. Wiss., p. 57 (1894), et Engl., Pflanz. Ost-Afr., C., p. 377 (1895). — Fig. 32 F.

P. magnifica Bullock, Hook. Ic. Pl., XXXIII, t. 3265 (1935).

P. longituba K. Schum. var. *magnifica* (Bullock) Bullock and Taylor, Kew Bull., p. 57 (1940).

Subshrub, about 1 m tall, subsucculent, branched, pubescent all over with crisped more or less septate hairs. *Stems* thick, lower parts blackish in sic., wrinkled, hard, very finely reticulate, 1 cm in diam. 36 cm below the inflorescence, swollen at the nodes which are 2 mm wider than the middle of the internodes which are 2-4 cm long. *Stipules* sheathing, connate, with 3-9 hairy filiform lobes 3-11 mm long bearing colleters 1.5 mm long, from a wide base 2-2.5 mm high. *Leaves* elliptic, narrowly ovate, or elliptic-lanceolate, acute at the apex, cuneate at the base, petiole very broad scarcely 2 mm long, lamina 9.5-21 cm long and 3.5-7.4 cm wide, pubescent above, with longer matted hairs below particularly on the costa; lateral nerves 12-19, prominent below, little impressed above, venation reticulate below. *Inflorescence* terminal lax, trichotomous, branches puberulous up to 5 cm long, apex irregularly and shortly branched, cymes 3-6-flowered; bractlets minute or obsolete. *Flowers* not dimorphic, white, subsessile. *Calyx* tube campanulate softly pubescent, 5-6 mm long and 4 mm broad, often supported by a minute bracteole, lobes linear 1-1.9 cm long, and 0.5-1.5 mm wide at the base; between each pair of lobes there are 1-3 stipitate glands 1-2 mm long. *Corolla* tube white 6.6-16 cm long at least some flowers with tubes 13.5 cm long present, 2-3.5 mm in diam. below, dilated slightly towards the apex, densely pubescent with 2-3-celled hairs having walls with raised dots; throat hairy and tube villous for 2 cm below, rest of the inside of the tube glabrous and striated; corolla lobes patent, obovate subacute, 2-2.5 cm long and 1-1.2 cm wide, pubescent outside on the costa, glabrous within. *Stamens;* anthers included, 8-9.5 mm long, dorsifixed, tips 3-4 mm below the throat. *Style* exserted 1-1.9 cm, scaly-tomentose above, glabrescent below, stigma bilobed, elliptic 3 mm long. *Capsule* ovoid, 10 mm long and 9.5 mm wide, rounded at the base, ribbed, grooved between the loculi, dehiscing by woody valves and separating into cocci, the ribs and nerves eventually separating as a free network; beak pointed and compressed 4.3 mm tall; free part of calyx tube 0.75 mm high, lobes persistent.

Tanganyika : Usambara, in Felsritzen, der hoheren baumarmen Regionem, *Holst* 418* (T.) (B.+); (this locality appears on the photograph of the type preserved at Kew, but the species has never been recollected there); Kilossa, Mt. Luemba, in crevices on great granite precipices at the summit, bright green semi-succulent shrubby herb, 3.5 ft tall with magnificent white tubular flowers,

alt. 1860 m, Feb. 1933, *Burtt* 4555 (T. of *P. magnifica*, Neotype of *P. longituba)* (K., SHI.); Morogoro, among rocks, « ndondoole » (Kiswah.), alt. 1500 m, April 1932, *Wallace* 307 (K.); Ulugurus, Schlesien-Lugongo, Strauch 2 m, Bl. weiss sehr lang, alt. 1200-1500 m, March 1926, *Peter* 39153 (B.); Ulugurus, Nguru ya Ndege Berg, Kopf Savanne Hügel, Nord-westseite, strauchartig 0.8-1 m, gwintsen felsen in Geröll. Blüte weiss häufig, alt. 1300 m, Jan. 1933, *Schlieben* 3331 (B., S., BR., BM.).

Observations. — 1. — Miss Ross Craig's excellent figure of *P. magnifica* serves to illustrate this very showy species which is confined to a few mountains in Central Tanganyika. *P. magnifica* was described as a new species owing to the fact that a wrongly named duplicate from Berlin was taken to represent *P. longituba*.

2. — Two records are given in Engl. Bot. Jahrb. XXVIII, p. 486 (1900), namely Goetze 258 and 719 but these are false records, the plants being *P. pseudomagnifica* and *P. decora* respectively.

8. **Pentas pseudomagnifica** M. R. F. Taylor, Kew Bull., p. 56 (1940). — Fig. 32 A.

Shrubby subsucculent herb, becoming woody. *Stems* terete or a little quadrangular, warty, about 2 cm wide near the base, branched basally, branches 2-3 mm in diam., covered with short hairs; internodes 1.2-15 cm long. *Stipules* with 5-7 hairy filiform setae bearing conspicuous colleters, 6-12 mm long from a short base. *Leaves* paired, ovate to ovate-lanceolate, acute at the apex, cuneate or rounded and then cuneate basally, petiole 4-11 mm long; lamina 2.8-12 cm long and 1.5-3,4 cm wide, shortly hairy above with bristly hairs, and on the nerves below; lateral nerves 7-10 prominent below, impressed above. *Inflorescence* branched and often axillary inflorescences in the 1st., 2nd. and 3rd. axils from the apex, each a pedunculate cyme of 2-10 flowers; often in small plants there are only 13 flowers; peduncles 0.6-5.5 cm long and pedicels 1.5 mm. *Calyx* urceolate, whitish, shortly adpressedly hairy, 4-5.5 mm long and 3-5 mm wide, lobes linear to spathulate, subequal, 7-12 mm long and 1.5-3 mm broad, or some ligulate 4 mm long and 0.5 mm wide, with bristly hairs. *Corolla* tube hairy 7-12.5 cm long, but always some long examples in every inflorescence, 1-2.5 mm wide, dilated at the apex to 3-4 mm for a distance of 10-16 mm, lobes ovate 9-18 mm long and 4-8 mm wide, sparsely

hairy outside, minutely papillate inside, with throat hairs extending over the base. *Style* exserted 9-12 mm, tomentose with white scaly emergences; stigmas 2-3.5 mm long; throat hairy with long white hairs. *Anthers* included, 7.5 mm long, the tips 4-6 mm below the throat orifice. *Fruit* oblong 5-7 mm tall, 7-9.5 mm wide (major) and 7 mm wide (minor), beaked; there is a rim 2.5 mm tall formed of the veined free part of the calyx tube which extends above the disc; valves glabrous, dorsally rounded, much compressed, 4-5 mm tall; intravalvular opening 5 mm long and broad. *Seeds* angular-ovoid about 1 mm long.

Tanganyika : Uluguru Gebirge, Nordwestseite, Urwald, strauchartig, 1 m, Bl. weiss, alt. 3000 m, Feb. 1933, *Schlieben* 3379 (B.); Lukwangule Plateau, locally dominant on rock margins, Sept. 1951, *Greenway* and *Eggeling* s. n. (EA.); ditto on edge of mountain forest, subshrub about 1 m tall, white flowers reddish on the outside, alt. 2400 m, Nov. 1898, *Goetze* 258 (B.+, K.) (referred to *P. longituba* by K. Schum.); Lupanga Peak, secondary scrub on mountain summit, with *Philippia excelsa,* handsome white tubular flowers, alt. 2060 m, Dec. 1933, *Burtt* 4979 (T.) (K., SHI.); ditto, shrubby herb with dark green foliage and long tubular white flowers, rare, alt. 2060 m, Dec. 1931, *Burtt* 3480 (K.); ditto, near summit, shrub with white flowers, alt. 2330 m, Dec. 1933, *Mitchelmore* 857 (EA., K.).

Observations. — 1. — This well-marked species shows affinities, particularly in the shape of the capsule, with *P. hindoioides.*

2. — Miss Taylor remarks that although she had only seen macrostylous flowers « doubtless the species exhibits heterostyly ». In the early history of the genus heterostyly was constantly over-

Fig. 32. — *Pentas pseudomagnifica* Taylor : A, flower (× 1) (from *Mitchelmore* 857 A); *P. nobilis* Sp. Moore : B, flower (× 1), and style indumentum (× 10) (from *Eyles* 496); *P. decora* Sp. Moore emend : C, flower (× 1), style indumentum (× 12), and single papilla from style (× 165) (from *Emson* 383); *P. longiflora* Oliv. : D, flower (× 2.5) (from *Napier* 713); *P. hindoioides* K. Schum. var. *glabrescens* Verdcourt : E, flower (× 1) (from type); *P. longituba* K. Schum. : F, calyx and gland (× 2) (from *Burtt* 4555); *P. graniticola* Bruce : G, calyx (× 1) (from *Hammerstein* 5); *P. nobilis* Sp. Moore : H, fruit (× 2.5) (from *Burtt* 6337); *P. longiflora* Oliv. : I, fruit (× 5) (from *Grote* 7875); *P. graniticola* Bruce : J, fruit (× 2.5) (from *Burtt* 5136).

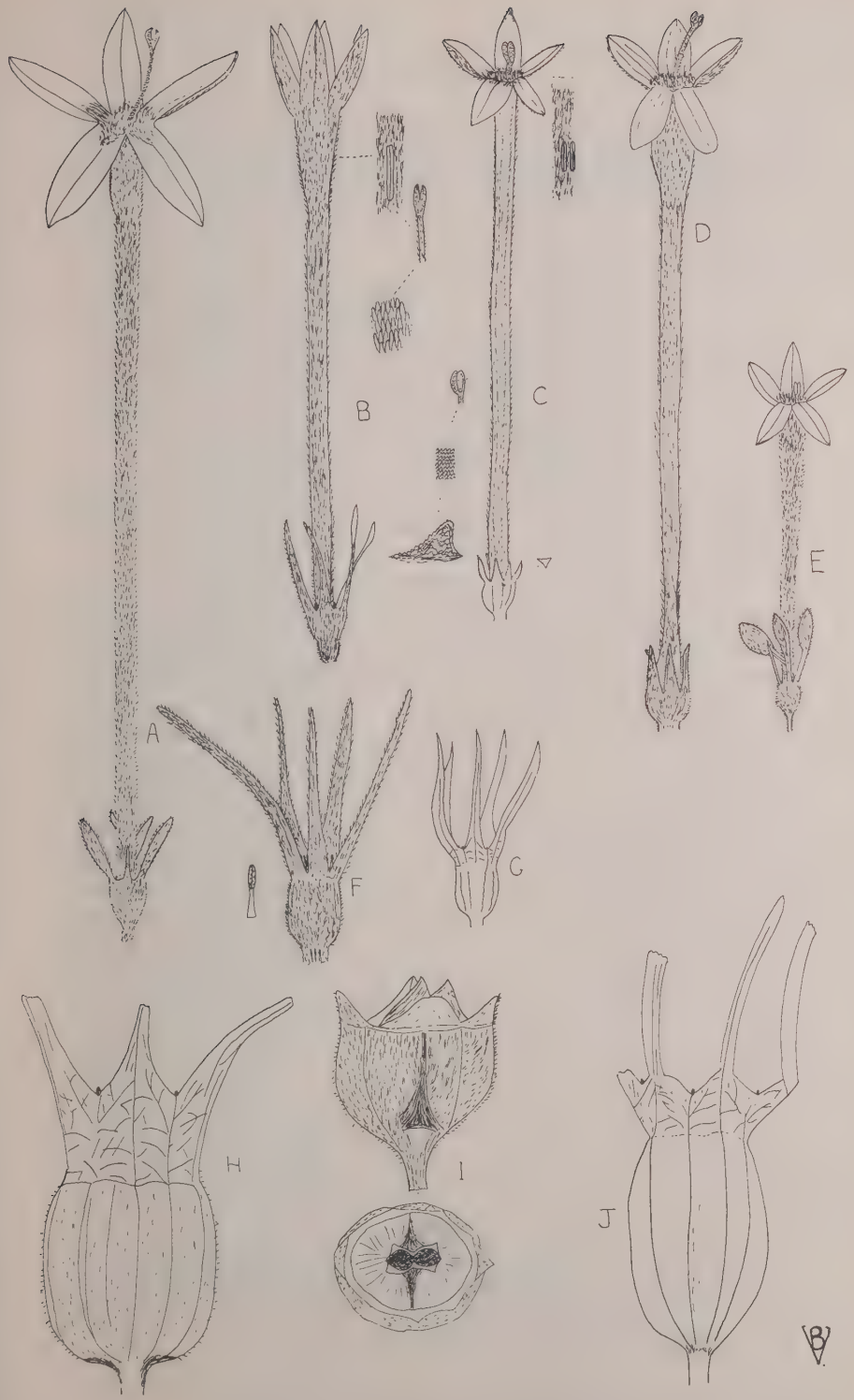

Fig. 32, *see explanation at bottom p. 272.*

looked, but later it was attributed to all species without evidence. This present species is monomorphic. It is restricted to the Uluguru Mountains in Tanganyika.

9a. **Pentas nobilis** Sp. Moore, Journ. of Bot., XLVI, p. 37 (1908). — Fig. 32 B and H.

P. longituba Auct. non K. Schum.; De Wild and Durand, Bull. Soc. Roy. Bot. Belg., XXXVII, p. 117 (1898).

Shrub, shortly pubescent all over, often drying a yellowish-russet colour. *Stem* woody, ridged, grey-black, 3.5-7 mm in diam., epidermis ridged or rucked in folds, young stems often orange-ferruginous; internodes 2-10 cm long. *Stipules* with 4-5 subequal subulate setae 8-12 mm long from a very short base, colleters conspicuous. *Leaves* ovate, ovate-elliptic, or elliptic-oblong, acute at the apex, rounded at the base, or abruptly and then gradually cuneate, petiole 0-1 cm long; lamina 5-14 cm long and 1.6-7.2 cm broad, subscabrid above with very minute bristly hairs, and on the costa and nerves below; lateral nerves 6-13. *Inflorescence* small and about 6-flowered, or larger, lax, up to 25 by 15 cm. *Flowers* geminate, whitish. *Calyx* shortly hairy, lobes subulate or minutely spathulate, equal, 6-22 mm long and 1-2 mm wide; if a trifle spathulate, then apical portion acute, 1.7 by 1.5 mm. *Corolla* tube pubescent 7.5-12 cm long, 1-3.5 mm wide at the base, dilated to 3-7 mm for an apical portion 1.2-2 cm long, lobes 13-18 mm long and 3-6.5 mm wide, ovate-oblong, acute; throat densely hirsute. *Style* tomentose; limited heterostyly occurs, flowers ☿ i or flowers ♀ e being found; ♂ e flowers do not exist. *Fruiting inflorescence* large, laxly branched, with peduncle 10-12 cm long. *Fruits* geminate on the branchlets, sessile and spicate; straw-coloured, large, oblong, subglobose or dorsally compressed, 10-17 mm long and 10-14 mm wide (major) and 8-9 mm wide (minor), with a very nervose frill formed by the free portion of the calyx tube extending above the disc for 3-5 mm, dilated and forming an angle with the adnate part of the calyx tube, minutely pubescent, calyx lobe bases persistent; the calyx tube ultimately disintegrates and the ribs separate, but are joined at their apices by a fine skeleton network of the free anastomosing veinlets of the frill. The true fruit wall splits longitudinally into 4 valves which are externally somewhat transversely rugose.

Tanganyika : Ufipa, Mmemye Mountain, rock crevices near the summit, occasional erect subshrub, flowers cream, the tube red below, only pin-eyed forms seen, alt. 2450 m, Feb. 1951, *Bullock* 3719 (K.).

Belgian Congo : Toa, near Albertville, May 1895, *Descamps* s.n. (BR.); Lake Tanganyika, 1899, *Lt. Hecq* s. n. (BR.).

Northern Rhodesia : Abercorn District, gorge of the Wambeshi R., plant 2.5 ft tall, flowers white, locally common with *Vellozia* on the rocky coast of Lake Tanganyika, alt. 1100 m, April, 1936, *Burtt* 6337 (K., SHI.); Kaperimiposhi Hills, small shrub, Jan. 1907, *Allen* 450 (GOV.); Near Senenge on a small sandstone Kopje, July 1930, *Pole Evans* 2882 (39) (GOV., etc.).

Southern Rhodesia : Salisbury, sand pit Kop, erect 2-4 ft tall, flowers white, alt. 1600 m, Feb. 1927, *Eyles* 4393 (GOV.); Mazoe, on precipitous side of Iron Mask Hill, small shrub, bark of young stems slips off when dragged, old stems woody but soft and wet, flowers white, raised yellow longitudinal ridge in the centre of the back of each lobe, alt. 1660 m, March 1906, *Eyles* 248 (lectotype) (BM., GOV.); Cleveland, shrub 3 ft tall, on granite whaleback, flowers white with sweet scent, tube net-veined in lower half, Jan. 1946, *Wild* 638 (GOV.); Mazoe, summit of Bernheim Hill, small straggling shrub in crevices of cliff, bark of old shoots brown, of young floriferous shoots green or reddish, calyx green, corolla tube with reddish vertical lines, for 2 3 of the length, white above, lobes patent, white, throat hairs ascending, alt. 1700 m, Dec. 1906, *Eyles* 496 (BM, BOL., GOV.); Marandellas, Feb. 1942, *Dehn* 107 (GOV.). Sheets have also been seen from Dombashawa, Macheke, Mtoko, and Concession; the plant is probably common in all suitable localities in Southern Rhodesia.

Observation. — This is the most widely distributed member of the subgenus and occurs on rocky hills in Tanganyika, Belgian Congo, Northern and Southern Rhodesia.

9b. **Pentas nobilis** Sp. Moore var. **grandifolia** Verdcourt var. nov.; a planta typica foliis majoribus ad 20 cm longis differt.

Stipules, with setae about 20 mm long. *Leaves* 20 cm long and

7 cm wide. *Flowers* large, towards the end of the range given for the typical form.

Tanganyika : Livingstone Mountains, 1898, *Goetze* 852 (T.) (B.+, K.).

Observation. — Engler (Bot. Jahrb. XXX, p. 412 (1901) records *Goetze* 85 from the Livingstones as *P. longituba* K. Schum., and I suspect that this is an error for 852.

10. **Pentas graniticola** Bruce, Kew Bull., p. 146 (1933). — Fig. 32 G & J.

Shrub, entirely glabrous except for the throat and style, branched, often drying a straw or russet colour. *Stems* pale, woody, striate, 2.5-3 mm in diam.; internodes 2-4 cm long. *Stipules* with 3-6 setae 5-15 mm long and 1 mm wide, arising from a narrow base and bearing rather conspicuous colleters. *Leaves* paired but arrested branchlets sometimes give a falsely verticillate appearance, elliptic-lanceolate, acute or slightly acuminate, cuneate at the base, petiole 0-10 mm long, lamina brown or blackish *in sic.,* 11-15 cm long and 2.8-6 cm wide, lateral nerves 7-11, with costa prominent above and below. *Inflorescence* much branched, loosely cymose, pedicels and secondary peduncles 0.2-3.5 cm long, the flowers often looking solitary; inflorescence sometimes subtended by leaves which are linear-lanceolate, 5.2 cm long and 2.5 mm wide. *Calyx* tube yellowish, 6 mm long; in young fruits the adnate part of the tube is 2-6.5 mm long and 2-7 mm wide, the free part 2-2.5 mm tall and reticulately veined; if the lower part of the calyx tube and ovary are shrunken in dried specimens the upper free part looks as if it were the entire calyx, lobes subequal, linear, subulate, acute, 10-28 mm long and 1.5-2 mm wide at their base. *Corolla* tube 7-12 cm long, 1.5-2.5 mm wide at the base dilating to 2.5-3.5 mm for an apical distance of 8-10 mm, lobes 10-12 mm long and 3.5 mm wide, papillate internally: throat hairy with long hairs for 2 cm, anthers included. *Style* exserted or included, minutely scaly-tomentose. *Fruit* ellipsoidal, straw-coloured or deeper brownish-flushed, main part 11 mm long by 8.5 mm by 6 mm wide; pedicels 2-8 mm long; frill 4 mm tall, ribs separating as in previous species; beak little raised and intravalvular opening small.

Tanganyika : Near Mwanza, coast of Speke Gulf, a semisucculent plant with long white tubular flowers, jasmine-scented, growing in the cracks of granite rocks, alt. 1230 m, *Burtt* 2497 (T.) (K.); Shinyanga District, in the Mantini Hills, a white tubular, sweet-scented plant, the base of the stem succulent and swollen, growing on exposed hill tops in the cracks of great granite rocks, alt. 1300 m, *Burtt* 2458 (K.); Lake Province, Sanwa Kamili Hills, among granite boulders in exposed crevices, leaves bright green, flowers white, locally common, alt. 1300 m, June 1935, *Burtt* 5136 (SHI.); Mantini Hills, alt. 1330 m, Jan. 1934, *Burtt* 5049 (K., EA., SHI.); Shinyanga, *Koritschoner* 2261 (EA.); Tabora, Nyembe Bolungera, auf einem felsen, Blüte weiss, 1914, *Hammerstein* 5 (EA.).

Observation. — This species shows the same type of limited heterostyly as *P. nobilis* to which it is closely allied. No ♂ e flowers exist. *P. graniticola* occurs in a limited area of Tanganyika from the south of Lake Victoria to Tabora.

Subgenus **Chamaepentadoides** Verdcourt, subgen. nov.

Suffrutices perennes; folia opposita petiolata. Flores albi, haud dimorphi. Corollae tubus usque 5.5 cm longus. Calycis lobi aequales, subulati vel subaequales 2-3 ad apices, spathulati basi angusti. Inflorescentia pauciflora. Stylus exsertus tomentosus. Antherae inclusae. Capsula majuscula oblongo-globosa, compressa. (G. — *P. hindoioides*).

The species included in this subgenus shows strong affinities with the previous one, particularly to *P. pseudomagnifica* and also to *P. longiflora* (subgen. *Longiflora*). The genus *Chamaepentas* Brem., creeping herbs with inflorescences reduced to about two flowers, spathulate calyx lobes and a corolla almost identical with that of the present group, is clearly very closely allied to this subgenus. Both are derived from a not very distant ancestor and are hardly generically separable. Species 1 with three varieties, confined to a small area including the Teita Hills, Pares, and West Usambaras. See Fig. 26.

11a. **Pentas hindoioides** K. Schum., Engl. Bot. Jahrb., XXXIV, p. 330 (1904).

Shrub, irregularly branched, with apical lateral branches over-

topping terminal shoot. *Stems,* woody, brown, covered with crisped whitish hairs, 1.5-2 mm in diam.; internodes 2.5-10 cm long. *Stipules* with 2-3 hairy, short linear setae, 2-4 mm long from a short base, colleters pale 0.3 mm long. *Leaves* ovate, ovate-lanceolate, or elliptic-lanceolate, acute or somewhat acuminate at the apex, cuneate at the base, petiole 5-14 mm long; lamina blackish *in sic.,* 3.3-6 cm long and 1.2-2.5 cm wide, adpressedly hairy above, greyish below, velvety with crisped hairs particularly at right angles to the nerves; lateral nerves 5-8. *Inflorescence* terminal consisting of 3-4 umbels just above the first node, each umbel with 3-5 flowers; pedicels 2-5 mm long. *Calyx* tube 3-3.5 mm long and 2.5-3.5 mm wide, densely covered with patent hairs, lobes spathulate-linear or oblanceolate, the narrow basal portion densely, and the upper portion less densely covered with patent hairs, 8-9 mm long, rarely some only 2.5 mm long; the spathulate portions are 6 mm long and 2 mm wide. *Corolla* tube 2.7-4.5 cm long, 1-1.5 mm wide basally, dilating to 2-3.5 mm for an apical 8 mm, lobes densely hairy outside, with throat hairs extending over the extreme bases, 6-12 mm long and 2-5 mm wide, ovate-oblong to oblong-lanceolate; throat densely hairy. *Style* exserted for 0.5-1.5 mm, tomentose with minute scaly emergences; stigmas thickened 1.75-2 mm long. *Anthers* 5.5-6 mm long, the apices 3-3.5 mm below the throat. *Fruit* hairy, crowned with fragments of the calyx lobes, 6.5-8.5 mm long and 5-9 mm broad, both extremes on one inflorescence and both apparently mature, apical valves strongly reflexed outwards, minutely ridged on the outer faces. *Seeds* about 1 mm long, reticulate.

Tanganyika : Upare, Kamwala, Usangi, on mountains, white flowers, 2000 m alt., *Haarer* 703/25 (K.); ditto, May 1928, *Haarer* 1362 (Neotype) (K., EA.); Usangi-Kilomeni, herb by pathside « vasavi » (Siva), alt. 1500 m, 1937, *Davies* 1167 (EA.); Nord Pare, Bergheide, Kilomeni-Kissangara, weiss, alt. 1550 m, June 1915, *Peter* O. III. 27 (B.); ditto, auf Kaolin zwischen Khigatini und Kissangara, weiss, alt. 1250 m, Nov. 1915, *Peter* O. III. 208 (B); ditto, Lembeni-Kilomeni, alt. 1500 m, June 1915, *Peter* O. III. 126 (B.); West Usambaras, Sakare-Mauka, in bracken, alt. 1400-1500 m, Sept. 1902, *Engler* 1056* (T.) (B.+).

Observations. — 1. — This species has been completely overlooked although there are several specimens present in British herbaria under such names as *P. longiflora* and even *P. globifera* !.

The type has been destroyed. K. Schumann refers to the conspicuously capitellate stipular setae, the spathulate calyx lobes, and the few-flowered inflorescences — there is no doubt about the species he was referring to.

2. — The typical form is distributed in the West Usambaras and the Pare Mountains.

Key to the varieties of *P. Hindoioides*.

A. Some calyx lobes very spathulate at tips :

I. Leaves small, velvety-hairy . . . . . 11a. *P. hindoioides* s.s.

II. Leaves larger, glabrescent :

a. Leaves glabrescent, internodes 3-9 cm long. Corolla tube up to 4.5 cm long . . . . . 11c. var. *glabrescens*.

b. Leaves glabrous, internodes 0.8-2.5 cm long, mostly 1 cm. Corolla tube to 5.5 cm long . . . . . 11d. var. *parensis*.

B. Calyx lobes mostly subulate, subequal . . . . . 11b. var. *Williamsii*.

11b. **Pentas hindoioides** K. Schum. var. **Williamsii** Verdcourt var. nov.; a typo lobis calycinis subulatis non spathulatis differt; a *P. longiflora foliis* non lanceolatis, floribus majoribus, inflorescentiis paucifloris valde distincta.

Stems, woody, brown, somewhat strigosely hairy with crisped (purple-brown) hairs, densest above; older stems glabrous the epidermis furrowed and somewhat corky, grey, about 4 mm in diam. 30 cm below the inflorescence; nodes swollen, internodes 0.8-12 cm long. *Stipules* with 3-5 linear setae up to 3.5 mm long, colleters conspicuous, orange, 0.5 mm long, covered with minute hairs. *Leaves* (brown tinged brownish-crimson in places) elliptic or rounded-diamond shaped, acute at the apex, shortly but distinctly petiolate, petioles 1-1.5 cm long; lamina 3.8-11 cm long and 1.3-3.8 cm wide, shortly adpressedly hairy above, densely so on the costa and venation below; lateral nerves 7-10, 7 even in the smallest leaves (cf. *P. longiflora*) prominent below. *Flowers* few, about 15 per inflorescence, in terminal cymes at the apices of the branches, each portion of the inflorescence with 2-4 pedicellate flowers subumbellately arranged; secondary peduncles 4-8 mm long (-13 in fruit), pedicels 1.5-3 (-7) mm long. *Calyx* tube and pedicels densely covered with patent bristly hairs (brownish-crimson), ovoid, 3.5-4 mm long and 3 mm wide, lobes subequal, linear-

subulate, acute. 3-4 mm long and 0.5 mm wide, hairy externally, glabrous within. *Corolla* whitish with a faint purplish tinge on the under surfaces of the lobes, tube brownish-yellow at the base, 34-40 mm long, 3 mm wide at the base, 1.5 (0.5) mm wide at the middle, gradually dilating to 3.75 (3-3.5) wide at the throat, hairy outside, lobes elliptic, hairy outside, 7-8 (3-9) mm long and 3.5-4 (2-4) mm wide, acute, tips inflexed, internally minutely granular in texture, the inside granular layer stretching over the smooth outer layers and there is a slight dividing suture. *Style* exserted for 2 mm, densely roughened with minute scaly emergences; stigmas flattened, rugose, 3 mm long. *Anthers* included, 6 mm long, apices in line with the throat which is hairy above but less hairy and finally glabrous towards the base. *Fruit* hairy, oblong-globose, laterally compressed, particularly at the apex, 7.5-10 mm long, excluding the persistent calyx lobes, maximum width 6.5-9 mm, minimum width 3.5-7 mm; 10-ribbed, the sutural ones invisible; frill formed by the free part of the calyx tube 1.5-2 mm tall, reticulate; the valves protrude as an acute conical projection before dehiscence, 4 mm tall, minutely granulated (glabrous), later curving outwards, the cocci separating; after dehiscing the ribs separating as in *P. nobilis*. *Seeds* very numerous 100-200 in each loculus, closely fitting together on the placentae so that the surface is smooth; individual seeds angular, trapezoidal, reticulate, about 1 mm long; when fresh, testa cells have convex faces but as they dry the faces become concave and pitted.

Kenya : Teita, Ngangao Hill, woody herb in bracken scrub, tube purplish, lobes white, *Dale* 3813 (EA., K.).

Tanganyika : Lushoto District, Kishiuwi Hill, herb to 5 ft, flowers white, smell sweet, growing with *Rhamphicarpa, Selago,* and *Striga,* near the mountain peak, July 1950, *G. Williams* 66 (T.) (EA., K.); Magamba-Shume Forest Reserve, flowers white, mixed with *P. longiflora,* alt. 1850 m, June 1951, *Eggeling* 6145b (EA.); Madara-Mombo, June 1914, *Peter* O. I. 129 (B.).

Observations. — 1. — Living material of this variety has been studied and a very full description has therefore been drawn up. Parts of the description in parenthesis refer to dried material.

2. — This variety although rare in collections appears to be common in certain places in the West Usambaras and also in the Teita Hills.

11c. **Pentas hindoioides** K. Schum. var. **glabrescens** Verdcourt var. nov.; a planta typica foliis majoribus, nonnihil glabrescentibus differt. — Fig. 32 E.

Stems with internodes 3-9 cm long. *Stipules* with about 5 setae. up to 5 mm long, with conspicuous pale ovoid colleters. *Leaves* elliptic, acuminate, cuneate basally, petiole hairy up to 15 mm long, lamina 10 cm long and 3.5 cm wide, sparsely pubescent, lateral nerves 10. *Inflorescence* hairy each part 2-4-flowered. *Calyx* lobes hairy, some subequal linear, thickened apically about 6 mm long, others very distinctly spathulate, 11 mm long, 3 mm wide apically but only 0.5 mm wide near the base; a typical calyx would have 2-3 spathulate lobes and 2-3 linear ones.

Tanganyika : Makuyuni District, West Usambaras, ' kama chuma ' (Kishambaa), root used for pimples, alt. 400-1000 m, June 1935, *Koritschoner* 631 (T.) (EA., K.).

11d. **Pentas hindoioides** K. Schum. var. **parensis** A. Peter var. nov. in sched.; a typo foliis majoribus glabris, internodiis brevioribus, floribus majoribus differt; a *P. pseudomagnifica* Taylor floribus minoribus differt.

Stems with internodes very short 8-28 mm long; parts of the mature stem have as many as 10 nodes in a 10 cm length. *Leaves* ovate-oblong to elliptic-oblong, quite glabrous, 6-9 cm long, and 2.7-4.5 cm wide, acute at the apex, concavely cuneate basally, petiole up to 2.3 cm long. *Calyx* lobes unequal, some spathulate 9 mm long, the apical 6 mm being dilated, the rest of the lobes subulate. *Corolla* tube 5.2-5.5 cm long, lobes 7 mm long and 3 mm wide.

Tanganyika : Sud-Pare, Schengena, blassblau, alt. 2220 m, Feb. 1915, *Peter* O.III.53 (T.) (B.).

Observation. — This plant may be more distinct than has been indicated, but futher material is needed to decide. It is known only from the type collected in the Pares.

Subgenus **Longiflora** Verdcourt, subgen. nov.

Herbae erectae, lignosae, perennes. Folia opposita vel saepius 3-5-natim verticillata, subsessilia. Flores haud dimorphi, majusculi,

albi vel albescenti. Corollae tubus ad apicem leviter dilatatus, lobi oblongi, marginati. Calycis lobi lineari-deltoidei, subaequales haud foliacei. Stylus exsertus, muriculato-tomentosus. Antherae inclusae. Stigma bifidum, lobis ovalis obtusis. (G. — *P. longiflora*).

No species in the subgenus is restricted to paired leaves. Dehiscence of the capsule is entirely apical. This well-marked subgenus is distributed in East Africa, Nigeria, Belgian Congo and Angola, mostly on high ground in grassland habitats. Species 4 and 4 named variations. See Fig. 27.

KEY TO THE SUBDIVISIONS OF THE SUBGENUS *LONGIFLORA*.

A. Plant a short pyrophyte about 15 cm tall . . . . . 15. *P. geophila.*

B. Plant taller, not a pyrophyte :

I. Leaves paired :

a. Corolla tube 2.5-4 cm long . . . . . 12a. *P. longiflora.*

b. Corolla tube 3.2-12 cm long always some flowers with tube over 6 cm long . . . . . 14b. *P. decora* f. *opposita.*

II. Leaves in whorls of 3-5 :

a. Leaves lanceolate. Corolla tube 2.5-4 cm long (forma *glabrescens* differs only in indument) . . . . . 12a. *P. longiflora.*

b. Leaves usually oblong or elliptic. Corolla tube exceeding 4 cm in length :

1. Stems stout. Calyx tube 3-5 mm long and 3-4 mm wide, lobes 3-7 mm long. Corolla tube 3.2-12 cm long mostly over 5 cm :

α. Leaves mostly glabrous. Corolla tube up to 12 cm long. Individual inflorescence components fewer-flowered :

★ Fruit robust, conic, strongly ribbed *in sic* . 14a. *P. decora.*

★★ Fruit ellipsoidal, not ribbed . 14d. *P. decora* var. *lasiocarpa.*

β. Leaves glabrescent to velutinous, corolla tube often only 5-6 cm long. Inflorescence usually multiflowered . . . . . 14c. *P. decora* var. *triangularis.*

2. Stems more graceful. Calyx tube 1.5-2 mm long and wide, lobes 3-4 mm long. Corolla tube about 5 cm long, scarcely 1 mm in diam. . . . . 13. *P. Liebrechtsiana.*

12a. **Pentas longiflora** OLIV., Kilimanjaro Expd., App., p. 341 (1886) (nomen); Trans. Linn. Soc., ser. II, II, p. 335 (1887); ROBYNS, Flore Spermat. Parc Nat. Albert, II, p. 328 (1947). — Fig. 32 D & I.

P. longiflora OLIV. var. *nyassana* SCOTT ELLIOT, Journ. Linn. Soc. Lond., Bot., XXXII, p. 433, (1896).

Neurocarpaea longiflora Sp. Moore, Journ. Linn. Soc. Lond., Bot., XXXVII, p. 157 (1905).

Herb, shrubby to about 2 m; rootstock woody, 15 cm long and 1-2 cm wide, enlarged at the apex to 4.5 cm, emitting 2-3 main shoots. *Stems* about 7 mm in diameter, branched above the base, brownish or purple-brown, striate or wrinkled, glabrous and shining or covered with whitish to rusty-orange hairs; internodes 1-12 cm long. *Stipules* with 3-7 linear setae 1-12.5 mm long from a base 1-2 mm tall. *Leaves* paired or ternate, lanceolate, rarely ovate-lanceolate, acute apically, sessile or petiole 0-5 (rarely 9) mm long; lamina 5.5-13.5 cm long and 0.7-3 cm wide, velvety or pubescent above and below, sometimes ferruginous; lateral nerves 3-6 (rarely 7), prominent below. *Inflorescence* many-flowered, 20-100, up to 14 cm broad, consisting of a dense terminal cymose cluster, much branched but with reduced peduncles, and axillary components; leaves subtending these inflorescences are not strictly opposite; primary peduncles up to 10 cm long; bracteoles filamentous 3 mm long, bracts 3.5 by 0.4 cm. *Calyx* tube glabrescent to velvety, often ferruginous, about 1.5 mm long and wide, lobes linear subequal 3-6 mm long. *Corolla* tube white or pale livid blue, 21.5-40 mm long, 0.5-1.5 mm in diam. basally, dilated at the apex to 1.5-2mm for a distance of 3-5.5 mm, hairs outside with a distinct tendency to be in longitudinal rows; lobes oblong, elliptic, acute or bluntish 3-6 mm long and 2-2.7 mm wide, internally minutely papillate: throat hairy, disc papillate. *Style* exserted 2-5 mm, densely roughened with minute white scaly emergences which give a very characteristic effect to the style even discernable to the naked eye; stigmas oval 1-1.5 mm long. *Anthers* 3.5-4.5 mm long, apices 1.5 mm below the throat orifice, which is constricted. *Fruit* characteristic in shape oblong-depressed, shortly pubescent with orange-brown hairs, strongly ribbed, 4-7.5 mm broad and 3-5.5 mm tall; beak papillate, shining but striate, arising abruptly from the centre of the disc.

Uganda : Buddu, Kalisizo, in a plantain garden, shrub to 6 ft, with whitish flowers, ' nalokwakura ' (Luganda), alt. 1330 m, Aug. 1945, *Purseglove* 1769 (EA., K., KAW.); Kigezi, lower slopes of Mt. Mgahinga, herb to 2 ft with grey-purple flowers, alt. 2100 m, Oct. 1940, *Eggeling* 4121 (EA., ENT.); Kisoro, Kigezi, on lava plains, subshrub 1-3 ft with woody rootstock and

dull bluish flowers, grassland, 2000 m, May 1951, *Purseglove* 3628 (EA., K., KAW.). Specimens have also been from Kachwekano, Masaka, Mt. Mfumbiro, Ruhinda, and Ruchigga.

Kenya : Chyulu foothills, on cultivated ground, flowers white, alt. 1300 m, May 1938, *Bally* 661 (EA.); Vicinity of Wambugu, alt. 1860 m, Sept. 1909, *Mearns* 1222 (US., NY.), 11 miles E. of Kericho growing on hillsides amongst tall grass in moist conditions, herb to 30" with white flowers, *Evans* and *Erens* 1461 (US.); Lolderoto Escarpment, in grasslands and bush, woody herb to 5 ft, flowers white, alt. 2300 m, Oct. 1929, *Gardner* 2012 (EA., K.). Numerous specimens have also been seen from Endebess, Elgon, Kamasia, Kedowa, Londiani, Fort Hall, Cherangani Hills, Uasin Gishu, Kisigau, Kipkarren, Nyeri, Mt. Kenya, Tinderet and Meru.

Tanganyika : Kilimanjaro, *Johnston* s.n. (T.) (K.); ditto, common but scattered in the *Myrica*-bracken zone,, southern slope between the Umbwe and Weru Weru Rs., perennial weak-stemmed herb up to 4 ft tall with bluish-white flowers, alt. 1600 m, Sept. 1932 *Greenway* 3232 (EA., K.); E. Usambaras, Sangerawe, rare in mountain grassland of *Hyparrhenia* and *Cymbopogon* on steep hill slopes, perennial herb with white flowers, alt. 1100 m, Oct. 1936, *Greenway* 4675 (EA., K., PRE.); Sud Pare Gebirge, Wudee-Tona, 1.2 m hoch, Bl. weiss sehr lang, alt. 1760 m, June 1926, *Peter* 41429 (B.). Numerous specimens have been seen from W. Usambaras, Moshi, Engare Nanyuki, Lupembe, Meru, and the Pares.

Belgian Congo : Nyiragongo, alt. 2000 m, Dec. 1911, *Fries* 1608 (UPS.); Kibati, route Kibumba, forêt sur plaine de lave, fleurs blanc rosâtre, alt. 1900 m, Jan. 1934, *De Witte* 1240 (BR.); Entre Kibumba et le Nyamuragira, sclérophylle dans la plaine de lave, herbe suffrutescente, 1.5 m haut, fleurs blanches, alt. 1800-2000 m, Aug. 1937, *Lebrun* 7055 (BR.); Ruwenzori, alt. 2000 m, 1933, *Michot* 33 (BR.); Tsagala, ' Kalehe ' (Tschibinda), Févr. 1946, *Hendrickx* 3906 (EA.); Nyiragongo, dans les crevasses de lave pauvre en humus, alt. 2000 m, Juin 1894, *Von Gotzen* 28 (B.+); s. l., *Kaessner* 3248 (BR.); Entre le Mikeno et le Mushumangabo, forêt sclérophylle sur plaine de lave ancienne, suffrutex de 0.60-1.80 m de haut, tube corollin ardoise, lobes blancs, alt. 1700 m,

Août 1937, *Louis* 4976 (BR.); Kamatembe, *De Witte* 1576, 1585 (BR.); Entre Kasindi et Lubango, chaîne ouest du lac Edouard, alt. 1720 m, 1932, *Lebrun* 4780 (BR.); Vallée de la Ruanoli, alt. 1800 m, Mai 1914, *Bequaert* 4438 (BR.); Nioka, *Taton* 34 (BR.); ditto, *Jurion* 198 (BR.); Mbuga-Iruma, *Bequaert* 3080 (BR.); Rutshuru, *Ghesquière* 8725 (BR.), Murambya, *Robyns* 2275 (BR.); Nioka, *Claessens* 96, 40, 28 (BR.); Ituri, *Jurion* 135 (BR.); Moharido, Beni, *Gillet* 123 (BR.); Aru-Mahagi, *Lebrun* 3734 (BR.)

Nyasaland : s. l., *Buchanan* 475 (T. of var. *nyassana* Scott Elliot) (K., US.); Zomba Plateau, *Brass* 16309 (K., NY.); Milange, border of Nyasaland and Mozambique, *Faulkner* 446 (K., NB. this plant which equals *Cameron* 6 from the same locality has abnormally large leaves 17 by 5 cm, petioles up to 2.5 cm long, and 10 lateral nerves — it probably represents a distinct variety but more material is needed).

Observations. — 1. — In this species the type specimen does not correspond with the mode, and is a plant with leaves ternate, whereas the commonest form has them paired. These forms occur together. The type of Scott Elliot's var. *nyassana* is not glabrous as stated and a new name is proposed for glabrous forms.

2. — No heterostyly occurs in this species and all microstylous specimens labelled *P. longiflora* have proved to be *P. lanceolata* (Forsk.) Deflers s. s. There has been some confusion between these species which although distinct show a deceptive resemblance; the following table shows the salient differences :

P. Lanceolata	P. Longiflora
Lateral nerves more numerous	Fewer
Leaves elliptic to ovate	Lanceolate
Flowers trimorphic	Monomorphic
Indumentum whitish (in sic.)	Often ferruginous
Calyx lobes foliaceous	Subulate or linear
Style roughened	Densely white tomentose
Fruit narrowed at the base obtriangular	Rounded at the base, oblong

3. — *P. longiflora* is widely distributed in E. Tropical Africa from Uganda and the Belgian Congo to Nyasaland, chiefly in the following areas, Kilimanjaro, Pare Mountains, Usambaras, Teita

Hills, Kenya Highlands, Ruwenzories, and Kivu. It is a grassland plant chiefly on volcanic soils.

12b. **Pentas longiflora** Oliv. f. **glabrescens** Verdcourt f. nova; a planta typica, foliis ± glabris differt.

Kenya : Kisii, grassland and scrub, alt. 1800 m, *Napier* CM. 10183 (T.) (EA.).

Tanganyika : Süd Pare Gebirge, Wudee-Tona, 1.2 m hoch, Bl. weiss, alt. 1345-1820 m, June 1926, *Peter* 41403A (B.).

13. **Pentas Liebrechtsiana** De Wild., Ann. Mus. Congo Belge, Bot., sér. IV, p. 153 (1903).

Herb. Stems pale brown, somewhat ridged, entirely glabrous, about 2.8 mm wide 20 cm below the inflorescence; internodes 6-12 cm long. *Stipules* with one central colleter-tipped deltoid segment up to 1.5 mm long and two sessile colleters on either side from a short base. *Leaves* in whorls of three, sessile, elliptic-lanceolate, acute at the apex and cuneate at the base, 5.2 cm long and 1.4 cm broad, glabrous below, with very slight scattered pubescence above; lateral nerves 4-6, prominent below. *Inflorescence* terminal together with axillary ones, from the apical node, together about 3 cm wide; peduncles 0-2 cm long. *Calyx* tube ovoid-conic, glabrous 1.5-2 mm wide and long, lobes subequal deltoid, 3-4 mm long and 1 mm wide basally, margins ciliate with minute scale-like hairs. *Corolla* tube 3.5-6.5 cm long, glabrous externally, about 1 mm wide, dilated at the apex to 2 mm for a distance of 9 mm, lobes oblong, acute, 6 mm long and 1.3 mm wide, tips inflexed, minutely papillate internally. *Style* exserted 8 mm, tomentose with white scaly emergences, stigmatic lobes elliptic, 1.8 mm long. *Anthers* narrow, 4.5 mm long, apices 5 mm below the throat orifice, which is hairy with long hairs extending 3-4 mm below the base of the anthers; rest of the inside of the tube glabrous.

Belgian Congo : Katanga, Lukafu, March 1900, *Verdick* 391 (T.) (BR.).

Angola : Malange, Kela, R. Luando Lui, *Gossweiler* 9509 (K.).

Observations. — 1. — The subgenus *Longiflora* is divisible into two quite distinct groups - *P. longiflora* already treated, and the

P. decora complex. This complex is very widely distributed in tropical Africa and if some botanists prefer to consider it a single species then it must take the name *P. Liebrechtsiana* De Wild. It is however, very easy to divide the complex into groups which are easily matched in the herbarium and are therefore best provided with names. There are three main factors concerned in the variation of the complex : *a)* number of flowers in the inflorescence, *b)* size of the corollae, and *c)* indumentum. The first two may be governed by the existence of polyploid forms since the differences are very similar to those instances where polyploidy has been the proved explanation. True *P. decora* has small dense inflorescences, often as few as 5-flowered, of large robust corollae, and the leaves are glabrous. These characters are more or less associated with a central African distribution. Further to the north, plants have hairy stems and leaves, smaller flowers, branched inflorescences which often contain 30-50 flowers. To the south-west a glabrous form with small flowers in few-flowered inflorescence which are, nevertheless, branched, occurs. These two groups have been treated as *P. decora* var. *triangularis* and *P. Liebrechtsiana* respectively. Intermediates occur and occasionally true *P. decora* has hairy leaves. Further collecting may indicate that indumentum characters should be avoided.

2. — Several statements in the original description of this species, and comparison with *P. longiflora* are inaccurate. The possession of subulate calyx lobes is supposed to distinguish it from that species, whereas both have them.

14a. **Pentas decora** Sp. Moore emend. Verdcourt, Kew Bull., p. 362 (1952). — Fig. 32 C.

P. decorus Sp. Moore, Journ. of Bot., XLVIII, p. 219 (1910).

P. Homblei De Wild., Fedde Repert, XIII, p. 109 (1914).

P. verticillata K. Schum. ex Scott Elliot, Journ. Linn. Soc. Lond., Bot., XXXII, p. 431, (1896) (nomen).

P. longituba Auct. non K. Schum.; Krause, Notizbl. Bot. Gart. Berlin, X, p. 603 (1929). (quoad spec. *Lindblomii* cit.).

Herb, 60-124 cm tall. *Stems* usually single, terete, somewhat woody, 1 cm in diam. basally, and 3-7 mm in diam. above, pale

brown or purplish, shining and striate, sparsely pubescent or glabrous, quadrangular or triangular above; internodes 2-14.5 cm long. *Stipules* with 1-5 ciliate setae, 0.5-8 mm long from a short base, often one deltoid lobe and one colleter on either side in the case of plants having 4-5 leaves in the whorl. *Leaves* in whorls of 3-5, elliptic, elliptic-lanceolate, or narrowly ovate, bluntly acute or rounded at the apex, rounded or cuneate basally, petioles 0-6 mm long, entirely glabrous save for minutely ciliate margins, sparsely pubescent, or rarely hairy; lamina pale grey-green, often reddish-tinged (*in sic.*), margined, 3.9-13 cm long and 0.9-5.6 cm wide; lateral nerves 5-11, slightly prominent below. *Inflorescence* consisting of one terminal and 2-4 axillary ones amalgamated, up to 12 cm across, each cluster ± 30-flowered, in life appearing as a white globe, peduncles 0-7.5 cm long. *Calyx* glabrescent or shortly strigosely hairy, 3-5 mm long and 3.5-4 mm wide, often subtended by minute bractlets, lobes deltoid, ciliate, subulate apically, 3-11 mm long and 1.5 mm wide basally. *Corolla* white, tube 3-12 cm long, shortly hairy in longitudinal rows with 2-4-celled septate hairs; tube 1.5-3.25 mm wide at the base, scarcely dilated at the apex to 2.5-3.5 mm for a distance of 12 mm; throat densely hairy with long hairs 1.5-2 mm long; tube glabrous below; lobes elliptic-lanceolate, acute, 8-13 mm long and 2-4 mm wide, tips thickened and margins bordered, i. e. the inner papillate layer overlapping the thicker outer hairy layer by as much as 1 mm, papillation due to minute hemispherical emergences. *Style* exserted 4-13 mm, densely white tomentose with emergences; stigma lobes blackish, elliptic, thickened, 1-3 mm long and 1.5 mm broad. *Anthers* narrow 5-8 mm long, the apices 5-11 mm below the throat. *Fruit* obovoid-obtriangular, 10-15 mm long and 7-10.5 mm wide, very prominently ribbed, pubescent, constricted at the apex; calyx lobes reflexed back, the free portion of the calyx tube forming a nervose frill 3.5-4 mm tall exceeding the beak which attains 2 mm; intravalvular opening 2.5 by 1 mm. *Seeds* ovoid, brown, conspicuously reticulate, 1-1.5 mm long.

Anglo-Egyptian Sudan : Lamboni, occasional tall herb in grassy waste ground, flowers white, faintly fragrant, ' arara ' (Acholi), *Myers* 9771 (K.).

Uganda : Agoro, Chua, on hills, abundant herb 1-2 ft tall with white flowers, alt. 2500 m, June 1942, *Eggeling* 5059 (EA.); Kam-

buga, Kigezi, grassland herb to 2.5 ft with white flowers, ' kabyachasa ' (Lukige), alt. 1670 m, May 1947, *Purseglove* 2423 (EA., K., KAW.); N. Kigezi, Ruhinda, grassland herb to 2-3 ft, leaves in whorls of 3-4, flowers white, tips of buds, corolla lobes and exserted style yellow, alt. 1670 m, *Purseglove* 3536 (EA., K., KAW.).

Kenya : Rift Valley, grass and bushland along the foot of the Solai Escarpment, flowers white on a single stem up to 3 ft tall, alt. 2500 m, *Gardner* 1470 (EA., K.); West Elgon, herb to 2.5 ft, flowers white, alt. 2300 m, Oct. 1931, *Jack* 25 (EA.); Kapenguria, grassy hillside in open country, erect herb to 3 ft, stems pink, leaves dark green and shiny, flowers white, waxy, tips of buds purple-brown, alt. 2300 m, May 1932, *Napier* 1991 (EA., K.); Mt Elgon, June 1920. *Lindblom* s. n. (S.). Numerous specimens have been seen from other parts of the Kenya Highlands.

Tanganyika : Iringa, Iheme, herb to 3 ft, with white sweetly scented flowers, alt. 2000 m, Feb. 1934, *Ward* 26 (EA.); Mbosi, common herb, alt. 1670 m, April 1932, *Davies* 546 (EA., K.); Njombe, Ukinga and Ubena areas, March 1937, *Ward* U 27 (EA., K.); Mbeya, common in grassland, herb with white flowers, alt. 1800 m, March 1932, *Davies* 139 (EA., K.); Iringa, Msima Stock Farm, perennial herb 2.5 ft tall, uncommon in hillside grassland, flowers white, smelling somewhat like honeysuckle, *Emson* 383 (EA., K.); Uvinsa, Lugufu-Kigoma, km 1210.5, 1.2 m hoch, Bl. weiss, alt. 1060 m, Feb. 1926, *Peter* 36756 (B.); Kyimbila, 1910, *Stolz* 597 (W., U., K., S., etc.).

Belgian Congo : Luendarides, *Kaessner* 2419 (T.) (BM., K.); Ober Katanga, Shisangwe, Jan. 1912, *Homblé* 94 (T. of *P. Homblei*) (BR.); Urundi ?, Mwai-Mukayagoro, 1 m hoch, Bl. weiss, alt. 1400 m, March 1926, *Peter* 38338 (B.); Katanga, on red argillaceous soil, *Quarré* 3895 B (PRE., BR.); Ituri, *Lacomblé* 82 (BM.); Arumbi-Berunga, Watsa-Kilo, *Louis* 4588 (BR.); Nioka, *Taton* 215 (BR.).

Northern Rhodesia : Mwinilunga District, Kalenda Plain in grassland amongst *Cissus, Sphenostylis,* etc., herb with rather woody rootstock, leaves bright green, stem palest green with longitudinal brown streaks, calyx pale green, margins and tips of

lobes dull purple, corolla tube greenish-white, limb white, style yellowish-white, stigma yellowish, Dec. 1937, *Milne Redhead* 3804 (K.).

Nyasaland : s.l. *Whyte* s.n. (BM.).

Angola : Gando Alto, Catumbela, in damp ground close to swamps, 3 ft tall, white flowers shaded to pale green, delicately scented, alt. 1500 m, Feb. 1941, *Faulkner* A 220 (K.); Caconda, ' Mumua ' woodland, March, *Gossweiler* 3629 (BM., K.); Benguela, between Caconda and Vissava, March 1907, *Gossweiler* 4292 (COI,, BM.).

Observations. — 1. — This distinct species when considered *sensu lato* is quite uncritical, but has been the subject of incredible confusion. The prolonged use of the name *P. verticillata* (e, g. Bullock in Kew Bull., p. 83, 1933) after the species had already been validly described twice perhaps caused this.

2. — In the field several characters may be seen which are obliterated on drying; the calyx lobes are rigid, convex outside and concave inside. In the buds there are definite constrictions between the limb and the apex of the tube. At the throat of the corolla tube there are small bosses inside opposite to the lobes which correspond to the pitted constrictions seen from the outside. This feature is also evident in the other species of this subgenus where the pits dry a different colour.

3. — *P. decora* is a grassland species of very wide distribution in Tropical Africa, occurring in the Sudan, Uganda, Kenya, Tanganyika, Belgian Congo, Angola, Nyasaland and Northern Rhodesia.

4. — *Becquet* 874 (BR.) is a form with exceedingly leafy stems, and congested nodes but occurred with the typical form.

14b. **Pentas decora** Sp. Moore emend. f. **opposita** Verdcourt forma nova; foliis geminatis non verticillatis differt.

Leaves paired, narrowly lanceolate-elliptic, 11.5 cm long and 2.8 cm wide, lateral nerves ascending. *Calyx* tube 3.5 mm long, lobes 4 mm long. *Corolla* tube 6-9 cm long.

Angola : Malange, flores albi, Nov. 1879, *Mechow* 335 (T.) (W.).

Observation. — This is a rare form recognised only because of its phylogenetic significance.

14c. **Pentas decora** Sp. Moore emend. var. **triangularis** (De Wild.) Verdcourt comb. nov.

P. triangularis De Wild., Fedde Repert., XIII, p. 139 (1914).

P. globifera Hutch., Kew Bull., p. 374, fig. 5 (1921).

P. verticillata K. Schum. ex Scott Elliot var. *pubescens* Sp. Moore, Journ. of Bot., XLVIII, p. 220 (1910).

Herb with root about 1 cm in diam. *Stems* brownish, 0.5-1 m tall, and 3-6 mm in diam., densely covered with short stiff hairs, yellowish or reddish in sic; internodes 0.5-12 cm long. *Stipules* with 2-7 setae together with additional colleters on either side. *Leaves* pubescent to densely velvety above and below, rarely glabrous, often rusty *in sic.* due to the walls of the septate hairs being orange in colour. *Inflorescence* up to 70-flowered, 9 cm wide, peduncles 0-4.5 cm long. *Calyx* tube 2-3 mm long and wide, hairy. *Corolla* tube 3.3-8 cm long, 1.5-2 mm wide in the middle, and dilated apically to 2.5-3 mm for a distance of 10 mm, lobes 6-11 mm long and 2-2.5 mm wide. *Anthers* 4.5-6 mm long and 0.25 mm wide, apices 3-6 mm below the throat. Rest as for typical form.

Uganda : Mabira forest, *Brown* 470 (T. of *P. verticillata* var. *pubescens*) (BM.); Toro, *Dogget* 5 (K.); Butambala, herb 3-4 ft tall in short grass, flowers creamy white, alt. 1330 m, Dec. 1930, *Snowden* 1884 (EA., K.); Mascha Road, alt. 1300 m, June 1937, *Chandler* 1777 (EA., K.).

Kenya : Endebess, *Webster* 8840 (EA.); Kipkarren, perennial herb to 2.5 ft, common in long grass, flower white, powdered root used for fever, Aug. 1931, *Broadhurst Hill* 121 (EA.); several other specimens have been seen from the Kenya Highlands.

Tanganyika : Ufiome, Bonga-Bereu, miombowald, Bl. weiss, alt. 1525 m, Aug. 1926, *Peter* 44196 (B.); Uha, Kivumba-Muhorro, 0.9 m hoch, Bl. weiss, alt. 1450 m, Feb. 1926, *Peter* 37608 (B.); Mbulu, rift scarp between Mbulu and Madukani, erect herb to

1.5 ft in grass savannah, flowers creamy white, alt. 2100 m, *Burtt* s. n. (SHI.).

Belgian Congo : Katanga, Lualaba Kraal, voisinage fleuve, fleur blanche, Dec. 1912, *Homblé* 934 (T.) (BR.); Kashika-Kabale, glabrous form, *Robyns* 2142 (K., BR.); Nioka, *Claessens* 132 (BR.); Kivu, *Humbert* 7343 (P., BR.).

Nigeria : Mongu, 1400 m, July 1921, *Lely* 386 (T. of *P. globifera*) (K.); Bauchi Plateau, flowers white in large head, June 1930, *Lely* 396 (FHI.).

French Equatorial Africa : Buar, 6° N, 15°35' E., alt. 800 m, June 1914, *Mildbraed* 9587 (K.).

Observations. — 1. — Hutchinson compared his new species with *P.* ' *verticillata* ' and it is odd that he did not notice the hairy specimens collected in E. Africa. He also states that the style is glabrous thus missing one of the most characteristic points about the plant. It is quite inexplicable how on page 219, Sp. Moore describes his *P. decora* and on page 220 he describes a variety of it without mentioning his new species and without realising its synonymy with *P. verticillata*. De Wildeman's description is inaccurate, giving the length of the corolla tube as 3.5 cm whereas the corollae of his type have tubes 5 cm long, but he indicated its affinities with *P. Liebrechtsiana* and *P. Homblei*.

2. — This variety has rather a different distribution from that of the type, occurring in N. W. Tropical Africa, as well as in East Africa.

3. — Two abnormalities of this variety have been noticed, and they are the only marked abnormalities found amongst several thousand individuals of the genus which have been examined. *Lindblom* s. n. (S.) from Mt. Elgon has a twisted stem and the whorls of leaves are disjunct, so that the leaves are alternate and spirally arranged. The young shoot was presumably damaged thus upsetting the position of the leaf primordia. The second is very striking and had been annotated as being a new species : *Maitland* 1423 (FHI., K.) from grasslands at Bamenda, Nigeria. The leaves are more lanceolate than usual, the inflorescence is a globular head about 8 cm in diameter, of some 30 flowers. The corolla tube in only 1.8-3.2 cm long, and there appear to be 10 lobes,

finely hairy inside, but on dissection 5 of these lobes proved to be enlarged connectives of completely abnormal stamens; the filaments are entirely free.

14d. **Pentas decora** Sp. Moore emend. var. **lasiocarpa** Verdcourt var. nov.; affinis *P. decorae* typicae, fructu elliptico-oblongis, in siccitate non costatis differt.

Leaves in whorls of 4-5, quite glabrous. Inflorescence consisting of a terminal inflorescence together with 4 axillary ones from the first node and five from the one below it, forming a spreading cluster up to 10 cm broad. *Calyx* lobes filiform 8-10 mm long. *Fruit* oblong-elliptic 7 mm long, 6.5 mm major width, 5 mm minor width, somewhat rugose, brown with black speckling *in sic.;* ribs extremely obscure; beak glabrous, striate, 4 mm long; no portion of the calyx tube forming a frill above the disc.

Tanganyika : Ujiji, Machaso-Mkuti, alt. 960 m, Nov. 1926, *Peter* 46221 (T.) (B.); Ujiji, Mkuti Fluss, Msosi, miombowald, Bl. weiss, 1-1.5 m hoch, alt. 960 m, Feb. 1926, *Peter* 37187 (B.).

Observations. — 1. — This variety is problematical since from the fruit alone one would believe it to be a distinct species. Flowering material from the same locality as the type is quite indistinguishable from most ordinary *P. decora*. Very little fruiting material of the latter has been collected and it is needed from throughout the range of the species. This variety could be an abnormality.

2. — *Peter* 37187 is a flowering specimen from the same locality as the type; the leaves are in whorls of 4 and the calyx lobes are 5 mm long; corolla tube 7-7.5 cm long; from the type specimen alone one might think that the peculiar fruits were correlated with leaves in whorls of 4-5, longer calyx lobes, and a more spreading inflorescence. *Napier* 1991 from Kenya, has long lobes but *Peter* 37187 has short lobes. *Peter* 38338 consists of two portions, one with the leaves in fours and calyx lobes 10-11 mm long and the other with leaves in threes and calyx lobes 5-7 mm long. There may be some correlation between the number of leaves in the whorl and the length of the calyx lobes.

15. **Pentas geophila** Verdcourt sp. nov.; affinis *P. decorae* et *P. pseudomagnificae,* sed habitu minore valde distincta.

Herba pyrophytica, perennis, erecta, 13-17 cm alta. *Caules* simplices 1.5 mm lati, hirsuti; internodia 1-4 cm longa. *Stipulae* parvae, segmentis deltoideis 1-5, usque 4 mm longis munitae. *Folia* opposita vel ternatim disposita, 3.2 cm longa et 1.4 cm lata, elliptica, utrinque hirsuta; nervi laterales utrinque circa 8. *Flores* 4-6 in inflorescentiis terminalis dense conferti; pedunculi 1-1.5 cm longi. *Calycis* tubus 2-4 mm longus, lobi deltoidei subaequales c. 4 mm longi. *Corollae* tubus 6.5-8 cm longus et 1-2.5 mm latus, extra hirsutus, intus superne dense villosus, lobi oblongo-obovati, ad apices mucronati, 12 mm longi et 5 mm lati, basi angusti 2 mm lati, extra hirsuti, intus pilosi. *Stylus* 4-8 mm exsertus, microscopice albo-papillosus; stigma bifidum, lobis ellipsoideis 2 mm longis. *Antherae* angustae, inclusae, 6 mm longae. *Capsula* ignota.

TANGANYIKA : Livingstone Mountains, Elton Plateau, grassland, white flowers, Nov. 1931, *Davies* E 14 (T.) (K.).

Observations. — 1. — Further information is needed concerning the habit of this species which occurs in a part of Tanganyika but little visited by botanists. It resembles *Chamaepentas Greenwayi* Brem. in the corolla but differs in habit and the shape of the calyx lobes. It is closely related to *P. decora* and it is interesting to note that the Paris duplicate of *Goetze* 719 also from the Livingstone Mountains has large corolla lobes 1.6 cm long and 4 mm wide.

2. — The throat is densely hirsute with long hairs and these spread up over the inside of the lobes of the corolla. The tips of the anthers are 6-7 mm below the orifice of the throat.

Subgenus **Pentas** s.s.

Herbs or shrubs. Leaves usually paired, ternate in two species only. Calyx lobes more or less unequal not subulate, 1-3 foliaceous, enlarged, elliptic, lanceolate, oblong or deltoid. These lobes are never stipitate, spathulate or subulate but are broadest near the base. Corolla tube usually under 5 cm long (save for species 23 the position of which is dubious). Style glabrous or tomentose. Heterostyly occurs in all but one of the sections. Several brightly coloured species belong to this subgenus the flowers being scarlet, red, pink, blue, mauve or white. Fruits obtriangular or oblong, costate, mostly without a frill formed from the free part of the calyx tube extending above the disc. (G. *P. lanceolata*).

Species 16 with 27 named intraspecific categories very widely distributed in Madagascar, Zululand, Angola, Central and East Africa, Nigeria, Abyssinia, Somaliland, Arabia, and the Comoro Islands. See Fig. 28-29.

The species concept in this subgenus is vaguer than in the others, and intermediate forms are frequent. A watertight key is difficult to construct under such circumstances. All the forms may however be readily identified by comparison methods. It is possible that this subgenus is polyphyletic but at the present, the grouping adopted is compact.

KEY TO THE SPECIES OF THE SUBGENUS *PENTAS* s.s.

A. Corolla tube 3.3-8 cm long, usually exceeding 6 cm . . . 23. *P. pauciflora.*

B. Corolla tube not exceeding 6 cm in length usually much shorter :

I. Leaves ± coriaceous, drying black and wrinkled, indumentum of very short papilla-like hairs (Somaliland species. Section *Papillopilosa*) :
a. Corolla tube 10-11 mm long . . . . . 22. *P. concinna.*
b. Corolla tube 18-28 mm long . . . . . 24. *P. glabrescens.*

II. Leaves not so coriaceous, nor drying black and wrinkled. Indumentum of longer septate hairs :

a. Flowers bright vermilion-scarlet, leaves with very fine characteristic indumentum below. Stem indumentum mostly ferruginous *in sic.* Capsule ovoid-oblong a little contracted above :

1. Leaves under 2 cm wide rarely up to 3 cm and then lateral nerves 3-6 and indumentum sparse . . 17. *P. parvifolia* aggreg.
2. Leaves up to 6.5 cm broad, rarely under 3 cm but if so lateral nerves 7-10 and indumentum velvety . . . 16. *P. Bussei* aggreg.

b. Flowers white, mauve, blue or pink only rarely red and then leaf indumentum coarser and capsule obtriangular :

1. Corolla tube 4-6 cm long. Calyx lobes 5-7 up to 9 mm long. Style with indumentum of dense emergences and also longer hairs just below the stigma . . . . . 21. *P. caffensis.*
2. Corolla tube rarely exceeding 4 cm in length. Calyx lobes 5, shorter. Style glabrous or roughened without hairs :
α. Flowers white, not dimorphic. Style always exserted. Leaves thin in texture (section *Monomorphi*) :

★ Corolla tube 4.5 mm long. Leaves large and thin. Inflorescence branches spicate in fruit . . . . 19. *P. herbacea.*

★★ Corolla tube longer. Inflorescence more condensed :

△ Corolla tube 6.5-7 mm long. Leaves subsessile (Madagascar) . . . . . 18a. *P. micrantha.*

△△ Corolla tube 7-18 mm long. Leaves petiolate (Mainland) :

+ Corolla tube 7-9.5 mm long. Leaves tenuous, ellip-

tic-ovate; lower petioles 2.5-3.5 cm long . . . . . 18b. subsp. *Wyliei*.

++ Corolla tube 14-18 mm long (very abnormally 10 mm). Leaves narrowly lanceolate . . . . . 20. *P. angustifolia*.

β. Flowers dimorphic, often coloured :

★ Corolla tube under 10 mm long (very rarely 10.5-11 mm) :

△ Leaves ternate. Herb 23 cm tall . . 27. *P. Purseglovei*.

△△ Leaves paired. Taller herbs or shrubs :

\+ Flowers and fruits in very dense globular heads, or if laxer then throat hairs extend up over the inner surface of the corolla lobes which are often erect. Flowers indigo or deep mauve :

* Corolla tube 3.5-4 mm long. Limb choked with long hairs. Inflorescence laxer . 30. *P. cleistostoma*.

** Corolla tube 4-9 mm long. Limb less hairy within. Inflorescence denser . . . . . 28. *P. purpurea* aggreg.

++ Flowers and fruits in laxer cymose inflorescences, corolla lobes devoid of hairs on inner face :

* Pyrophyte with numerous short stems from a thick woody rootstock. Corolla ± white, tube 4-4.5 mm long . . . . . 29. *P. arvensis*.

** Taller herbs with 1-3 stems from taproot. Corolla tube 4-10 mm long :

Ø Corolla purple or reddish, abnormally white, tube 8-10 mm long mostly . . . . . 25. *P. zanzibarica* aggreg.

ØØ Corolla white or blue, tube 4-5 mm long :

× Herb with spreading often densely hairy inflorescence. Flowers usually white. (Uganda to Congo) . . 26a. *P. pubiflora*.

×× Herb with smaller inflorescence. Flowers blue, indumentum crimson (Cameroons) . . . 26b. subsp. *bamendensis*.

★★ Corolla tube exceeding 10 mm long and attaining 40 (rarely 55) mm in length . . . 31. *P. lanceolata* aggreg.

Section **Coccineae** Verdcourt, sect. nov.

Frutices vel suffrutices, erecti vel subscandentes, ramis lignosis, in siccitate velutinis ferrugineo-hirsutis. Folia subtus pubescentia alba subtilia induta, vel glabra. Calycis lobi satis inaequales, foliacei. Corolla splendide coccinea vel miniata; lobi angusti oblongi.

Capsula oblonga ad apicem contracta, 2-cocca, purpureo-brunnea. (G. *P. parvifolia*).

Species 2 with 5 named infraspecific categories, occurring in Somaliland, Uganda (rare), South Abyssinia, Kenya, Tanganyika, Belgian Congo, and Nyasaland, in dry open woodland; frequent in the coastal belt. See Fig. 28.

This is a well-defined group but the two species in it tend to intergrade. The fruiting inflorescence is often spicate in regard to the individual branches. The fruit eventually divides into two cocci and apical dehiscence is negligible. This section shows close affinities with the genus *Otomeria*, the fruits being similar to those of *O. micrantha*, the flower colour to that of *O. elatior*, and the occasional tendency to be scandent hints at an affinity with *O. volubilis*.

16a. **Pentas Bussei** KRAUSE. Engl. Bot. Jahrb., XLIII. p. 134 (1909). — Fig. 33, C, E, F, G et H

P. flammea CHIOV., Fl. Somala, II, p. 231 (1932).

P. coccinea STAPF, Bot. Mag., t. 9005 (1924).

Shrub 1.6-4 m tall, erect or somewhat scrambling, rootstock much-branched about 12 cm deep and 40 cm in extent. *Stems* much-branched, leafy, woody, terete or quadrangular, brown striate, covered with lenticels, 2-5.5 mm in diameter, up to 1.6 cm at ground level; glabrescent below, with white or brown crisped hairs above (densely velvety with yellowish or ferrugineous hairs *in sic.*); internodes to 13.5 cm long; forms with long internodes often have hollow stems and straggling forms allied to species 17 have congested nodes at the base of the axillary branchlets. *Stipules* green (pale yellow-brown streaked with red-brown) with 3-9 linear flattened setae 4.5-15 mm long from a triangular base 1-6 mm tall. *Leaves* ovate, ovate-lanceolate, or ovate-oblong, acute or acuminate, at first abruptly and then very narrowly cuneate at the base, petiole 4-15 mm long; lamina 3.5-15 cm long and 1.7-6.5 cm wide, very discolorous, sparsely shortly hairy above, grey-green, white (or buff) below, pubescent or velvety with very fine short white hairs particularly at right angles to the venation; lateral nerves 5-12 prominent below. *Inflorescences* terminal and axillary, multiflowered, dense or lax, up to 8 cm wide, peduncles up to 4 cm

long. *Flowers* dimorphic. *Calyx* tube about 1.5 mm long and wide, glabrous or velvety, lobes foliaceous, very unequal; 1-3 much enlarged, narrowly lanceolate, acute, 3-nerved, pubescent, 5-18 mm long and 1-4 mm wide, rest small linear, deltoid or lanceolate, 1.5-7 mm long and 0.3-1.3 mm wide. *Flowers* ♀ e : corolla tube bright scarlet, tube greenish at the base 12-20 mm long, glabrous or sparsely hairy externally, 1-1.5 mm wide at the base, 0.3-1 mm wide in middle, and dilated at the apex to 2-3 mm for an apical cylindrical portion of 2.5-5 mm, internally hairy with long white hairs, which are flat, non-septate, with striate walls, entire inside hairy with two glabrous areas, hairs at mouth of tube scarlet; lobes 3-10 mm long and 1-4 mm wide varying in a single inflorescence, elliptic or oblong-lanceolate, sparsely pubescent on the costa externally, minutely papillate internally. *Anthers* 1.5-3.5 mm long, greenish-white densely spotted introrsely with brownish-crimson, tips 1-2 mm below the throat; filaments tinged scarlet; pollen globose 17.6 μ in diam. *Style* glabrous greenish-white exserted 3-9 mm, stigmas confluent for 1 mm, scarlet or purple, lanceolate 3 mm long densely papillate over the entire internal surface and externally save for a narrow greenish continuation of the style which forms a costa. *Flowers* ♂ e, similar, but corolla tube 10.5-16.5 mm long, about 1 mm wide at the base, gradually expanding to 1.5-2.5 mm wide at the throat, glabrous or with scattered hairs outside, densely hairy inside above, glabrescent below; lobes 4-12 mm long and 1.5-2.5 mm wide, oblong-lanceolate. *Anthers* mauve 2.3-4.5 mm long, filaments exserted 2-6 mm. *Style* glabrous, stigma lobes coherent 1.5-3 mm long, the tips either about 1.5 mm below the throat or exserted 0.5-3 mm. *Fruiting* inflorescences with individual branches spicate. *Fruits* oblong to obovoid, hairy, 4-6 mm long and 3-3.5 mm wide, brown or purple-brown, shining, constricted above, 10-ribbed, crowned by the persistent calyx lobes, beak papillate, only slightly raised; dehiscence longitudinal into two cocci and apical dehiscence uncommon. The interfaces between the two cocci are covered with raphides.

Somaliland : Oltregiuba, Baddada, shrub with red flowers, July 1929, *Senni* 395 (T. of *P. flammea*) (FI.).

Kenya : Coast Prov. Mida, scandent shrub to about 7 ft, flowers bright scarlet, ' Mlisha-Kungu ' (Kiswah.), ' Mforfordume ' (Kiswah.), *Graham* A 671 (2065) (K., EA.); Coast, Msambweni, Digo,

somewhat scrambling shrub to 8 ft. with bright red flowers, Sept. 1941, *Gardner* 1205 (EA., K.); Kilifi, common in grass and at roadsides, much-branched shrub to 4 ft. with carmine flowers, May 1945, *Jeffery* 193 (EA.). Specimens have also been seen from Arabuko, Sokoke, Mwachi, Mombasa, Rabai, Kwale, W. Suk, and Nairobi Arboretum (cult.).

Tanganyika : Cultivated at Kew from seeds sent from Amani by *M. R. Rogers* (T. of *P. coccinea*) (K.); Muera Plateau, Waldlayer, Mpunga in Brachystegienwald auf sandigen-lehmigen Boden an sonnigen Stellen, alt. 600 m, May 1903, *Busse* 2628 (T.) (EA., BR., K.); Lushoto District, on rocky road cutting above Mombo on Mombo-Lushoto Road, shrublet with crimson flowers, Jan. 1951, *Eggeling* 6016 (EA.); Mlinga Mountain, in bushland and grassland from top to bottom, not abundant, dimorphic, exserted styles blue-purple, exserted anthers blue-purple, corolla very bright carmine, *Verdcourt* 317 (EA., K.). A. Peter collected about 55 separate gatherings of this plant (B.). Material has been seen from the following places : Morogoro, Handeni, Sigi Valley, Amani, Kibata, Bulwa, Makuyuni, Ruvu River, Mpwapwa, Shinyanga, Pandeni, Undalies, W. Usambaras, Longusa, Nguelo, Ndarema, Korogwe, Uvinsa, Lugufu, Magila, Mahenge, Tabora, Uha, Lussimbi-Bikare, Kilimatinde, Magunga, Kwamkoro, Mnyussi, Pongwe, Kwa Schemschi, Usaramo, Pugu Hills, Luhomero, Iringa, Itigi-Chunya, and Kyimbila. There are numerous native names. ' Mnyapome ' (Kishambaa) seems a definite one.

Zanzibar : Mkokotoni Maweni, straggling herb to 5 ft, with bright scarlet flowers, March 1930, *Vaughan* 1301 (EA., K.); Nungwe, *Oxtoby* 28 (K.); Kidoti, auf Madreporen Kalk Hügeln, suffrutex 1 m alt., Sept. 1873, *Hildebrandt* 1124 (K., W., authentic specimen of *P. Klotzschii*).

Belgian Congo : Kamaniola, not typical, Febr. 1927, *Linder* 1990 (K.); Baudouinville, Mlobozi, gallery forest, *Robyns* 2214 (BR.); Mt. Nunta, *Kaessner* 2956 (K.); Albertville, bordure de tête de source en savane boisée, rouge, April 1948, *Schmitz* 1590 (BR.); Kibanda, *Kaessner* 3051 (K., BR., BM.); Ravin de Kafwampa, *Vanden Brande* 284 (BR., not typical).

Northern Rhodesia : Abercorn, among big trees on rocky banks

of watercourse, soil mostly humus or rocks, climber (sic), flowers scarlet, *Gamwell* 14 (BM.).

NYASALAND : sine loco, *Buchanan* 310 p.p. (US., K.); s. l. *Buchanan* 1187 (US., K.).

Observations. — 1. — The synonymy and correct name for this species presents an insoluble problem caused by the destruction of the Berlin Herbarium. Some attempt will be made to clarify the situation. Although Stapf added an unnecessary name to the synonymy, albeit a very appropriate one he cleared up a good deal of confusion surrounding the name *lanceolata* in one of the first lucid notes devoted to the genus. The types of *P. coccinea* and *P. flammea* have been examined and are both synonymous with *P. Bussei* of which several isotypes are in existence. *P. flammea* is a little different from the Usambaras form but there are no characters of note by which it could be retained and I prefer to regard it as a dry country form. It bears no resemblance to *P. Ainsworthii* to which Chiovenda likened it.

The nomenclature of *P. Bussei* is involved and it is quite possible that the name I have employed is not the oldest; it is completely unambiguous and best retained. Klotzsch described four species of *Pentanisia* from the Comoro Islands and Zanzibar, which had been collected by Peters, and all are referable to *Pentas*. Minute fragments only of two types obtained from Berlin by Dr. Stapf remain, and are preserved at Kew. If the names attached to these fragments are correct then a name change will be necessary which will lead to everlasting confusion. Only two of the four were described from Zanzibar, *P. nervosa* and *P. zanzibarica*, and they were stated to come from the island itself although at that time much of the mainland was also termed Zanzibar. If *P. zanzibarica* is accepted in its present usage which dates from Vatke, then the other name *nervosa* will be available for another species growing on the island, and since the original description mentions incanous pubescence on the under surface of the leaves it is reasonable to suppose that it refers to *P. Bussei*. There is no other species on the island to which it could refer, though there is close by on the mainland. The evidence of the fragments is however, quite contradictory and indicate that Vatke misidentified *P. zanzibarica* since the fragment so annotated is undoubtedly *P. Bussei*. Very many duplicates of species 16a from Berlin were named *P. zanzi-*

barica which is additional evidence. If this is so then the species called *P. zanzibarica* for 70 years is without a name since *P. purpurea* previously accepted as a synonym is an entirely different plant. As the real types are destroyed it is best to keep *P. zanzibarica* in its present interpretation and to use the name *P. Bussei* for the species under consideration. The fragment of *P. nervosa* preserved at Kew is a form of *P. lanceolata* subsp. *Quartiniana*. Vatke proposed the name *P. Klotzschii* for *P. cymosa, P. suffruticosa,* and *P. nervosa* of Klotzsch and cites *Hildebrandt* 1124 which is undoubtedly *P. Bussei*. Since only the last, *P. nervosa* came from Zanzibar, one is forced to the conclusion that *P. nervosa* was *P. Bussei*.

2. — An undescribed species of *Meligethes* (Coleoptera, Nitidulidae) frequents the flowers of this species and is perhaps the pollinating agent.

3. — This species has frequently been misidentified and some records e. g. from Uganda are erroneous. It is one of the commonest species and several hundred sheets have been seen from Tanganyika and Kenya; it also occurs in Italian Somaliland, Nyasaland, Northern Rhodesia, and the Belgian Congo but in each case on the borders only of these territories. Cultivated specimens have been seen from Port of Spain, Trinidad. An unnumbered Gossweiler sheet in the BM. said to be from Angola is very probably an error of labelling.

4. — The following invalid names refer to this plant in the sense of their author's but the nomenclatural types of all the names are forms of *P. lanceolata* (Forsk.) Deflers.

P. Klotzschii Vatke, Oestr. Bot. Zeitschr., XXV, p. 231 (1875) p. p.

P. carnea Benth. var. *Klotzschii* (Vatke) Scott Elliot, Journ. Linn. Soc. Lond., Bot., XXXII, p. 434 (1896) (an absolute botanical synonym in Scott Elliot's restricted sense).

P. carnea Auct. non Benth. p.p.; Hiern, Fl. Trop. Africa, III, p. 46 (1877), etc.

P. lanceolata Auct. non (Forsk.) Deflers; K. Schum. in Engl. and Prantl Pflanzenf. IV, (iv), p. 29 (1891).

KEY TO THE FORMS OF *P. BUSSEI*.

A. Corolla tube about 10 mm long . . . . . 16b. f. *brevituba*.
B. Corolla tube over 10 mm long :
  I. Leaves quite glabrous, over 3 cm wide . . . . . 16d. f. *glabra*.
  II. Leaves not glabrous :
    a. Leaves usually velvety below, under 2 cm wide . . .16c. f. *minor*.
    b. Leaves pubescent or hairy below over 3 cm wide . . 16a. *Bussei* s.s.

16b. **Pentas Bussei** KRAUSE f. **brevituba** VERDCOURT f. nov.; a typo floribus minoribus, corollae tubo 7-10 mm longo differt.

KENYA : Mutha Plains, Aug. 1938, Boy *Joanna* CM. 7412 (EA.).

TANGANYIKA : Iringa, *Emson* 503, 518 (EA.); Rufiji, uncommon in shade on red sandy soil, woody herb with scarlet flowers, ' msingiri ' (vernac.), 16 m alt., Jan. 1931, *Musk* 114 (T.) (EA.); Finti, Kirangi, Jan. 1928, *Burtt* 1054 (SHI.); Kyimbila, 1911, *Stolz* 679 (S.).

16c. **Pentas Bussei** KRAUSE f. **minor** VERDCOURT f. nova; a typo foliis angustioribus, 4.8-9 cm longis et 1.3-1.6 cm latis, supra pilosis, subtus velutinis differt; affinis *P. parvifoliae*, foliis subtus dense velutino-hirsutis, nervis lateralibus 7-10 distincta.

TANGANYIKA : W. Usambaras, Ng'ombe bei Makuyuni, Oct. 1915, *Zimmermann* in *Peter* O.III.213 (T.) (B.); Stromgebiete des Ruhudje, Landschaft Massagati, nordlich des Flusses 35°30' E., June 1931, *Schlieben* 1111 (BM., B., S., BR.). W. Province, Mpanda district, Kabangu, common in grassland, *Herring* in *Semsei* 162 (EA.); Morogoro, Uluguru Gebirge, *Schlieben* 3160 (S., etc.).

BELGIAN CONGO : Kivu, environ d'Uvira, Lac Tanganyika, corolle jaune à linéoles brunes (abnormal ?), *Humbert* 7267 (P., BR.).

Observation. — This is rather an arbitrary way of disposing of certain plants which are intermediate between species 16 and 17. The leaves are occasionally only pubescent.

16d. **Pentas Bussei** KRAUSE f. **glabra** VERDCOURT f. nov.; a planta typica foliis glabris differt.

Tanganyika : Uluguru Gebirge, südwestlich von Mission Station Schlesin oberhalb Morogoro, Strauch 3 m. blütrot, alt. 1250-1600 m, Nov. 1925, *Peter* 32165 (T.) (B.); Morogoro district, alt. 1500 m, March 1932, *Wallace* 393 (EA.). *Peter* 31403 and 38867 and *Schlieben* 1609 p. p. are glabrescent.

Observation. — This form is environmental and occurs in populations of the typical plant.

17a. **Pentas parvifolia** Hiern, Journ. Linn. Soc. Lond., Bot., XVI, p. 262 (1877), t. 7.

P. mombassana Hiern MS., ex Oliver, Trans. Linn. Soc., ii, II, p. 335 (1887), nomen nudum; Britten, loc. cit., ii, IV, p. 16 (1894).

Subshrub 1.6-2 m tall, straggling but not a true liane, branching irregular; straggling forms often have unequally developed branches on either side of a node, and if at one node the left hand branch is long and the right hand one short, then at the next internode the arrangement is reversed. *Stems* 1.3-6 mm in diam., woody, pale or purplish-brown, the epidermis often peeling, glabrous below, hairy with white or ferruginous hairs above; internodes up to 8 cm long, typically with about 8 congested nodes present at bases of the lateral branches, the ' piled-up ' stipules giving a frilly appearance. *Stipules* with 5-9 setae up to 5 mm long from a chestnut-brown, triangular base. *Leaves* 1.5-5.5 cm long and 0.3-0.8 cm wide, grey- or blackish- green *in sic.*, elliptic-lanceolate, cuneate, petiole 2-6 mm long, apically acute, glabrescent or pubescent above, with fine white pubescence beneath; lateral nerves 4-6. *Inflorescence* terminal combined with axillary ones from the apical node, usually 2-3 cm wide, frequently few-flowered. *Flowers* scarlet, trimorphic. *Calyx* tube obovoid, glabrous to velutinous about 1.5 mm long and wide, bractlets 2 mm long, lobes 5-6 unequal, the largest 3.5-11.5 mm long and 0.7-2 mm wide, rest 1.5 mm long, ciliate 3-nerved. *Flowers* ♂ e, corolla tube 7-18 mm long, 0.7 mm wide, gradually dilated at apex, lobes oblong to linear-oblong, 3.5-10 mm long and 1-3.3 mm wide, glabrous or pubescent outside, minutely papillate inside. Style and stigmas included, anthers 2-2.5 mm long, exserted 3-3.6 mm or rarely almost included. Throat densely hairy, rest of tube glabrous for 5 mm and then hairy to base. *Flowers* ♀ e, corolla tube enlarged cylindrically at apex to 2-5 mm for a distance of 2.5-4 mm. Style

exserted 4-6 mm, glabrous, stigmas about 1 mm long. Anthers 1.6-2.5 mm long, tips 0.3-1.5 mm below the throat. *Fruits* obovoid 3-6 mm long and 3.5-4 mm wide similar to those of *P. Bussei.*

Kenya : Banks of the Undurango, Nairobi, and Athi Rivers in the vicinity of Juja Farm near Nairobi estate of W.N. M. c. Millan., alt. 1350-1440 m, May 1909, *Mearns* 71 (US.); Athi River, Ol Doinyo Subuk, shrub with scarlet flowers, Nov. 1935, *Gedye* 3582 (EA.); Sokoke and Mabuko Forests, common but local on sandy soil, scandent shrub to 12 ft, flowers red, April 1947, *Jeffery* 572 (EA.); Mombasa, 1876, *Hildebrandt* 1994 (T.) (W., K., BM.); Kitui, April 1877, *Hildebrandt* 2458 (W., BM.). Sheets have also been seen from the Leroki Hills, Meru, Mwathabiti, Teita Hills, Athi Plains, Fort Hall Road, Suk, and cultivated, Nairobi.

Uganda : Sth. Moroto Mt., shrub to 10 ft in dry scrub, corolla deep red, alt. 1500 m, June 1942, *Dale* 251 (EA.); ditto, abundant on lower slopes, flowers smaller than coastal type, Oct. 1952, *Verdcourt* 767 (EA., K., PRE., MO.).

Tanganyika : S. Pares, Kisiwani, common in *Ximenia-Commiphora-Euphorbia* association on a gneiss hill slope in a brown sandy soil, shrub to 6 ft with brilliant scarlet flowers, alt. 1330 m, Feb. 1936, *Greenway* 4585 (EA., K., PRE.); Kikomobla Plateau, June 1903, *Busse* 2971 (EA.); Kiruru, Pare District, alt. 1000 m, May 1928, *Haarer* 1314 (EA., K.); Nord Pare, Steig zum Gebirge bei Kissangara, Strauch 2 m, Blüten prachtvoll hoch rot, alt. 990 m, June 1915, *Peter* O.III.121 (B.). Specimens have also been seen from Kilimanjaro, Moshi, Wudee, Makani, and Usangi (Pare Mts).

Observations. — 1. — The division into forms is merely convenient as f. *intermedia* merges with *P. Bussei.* Attempts to sort out homogenous groups based on various characters have only resulted in heterogeneous groups when judged by other characters. More field knowledge of the species throughout the range will help elucidate the matter.

2. — The species is widely distributed in Kenya and Tanganyika and is common in one Uganda locality.

Key to the forms of *P. parvifolia.*

A. Fruiting inflorescence with branches markedly spicate . . . 17c. f. *spicata.*

B. Fruiting inflorescence more compact :

I. Leaves exceeding 1 cm wide . . . . . 17b. f. *intermedia*.
II. Leaves not exceeding 1 cm in width . . . . . 17a. *parvifolia* s. s.

17b. **Pentas parvifolia** Hiern f. **intermedia** Verdcourt f. nov.; a planta typica foliis latioribus differt.

P. coccinea Auct. non Stapf; Chiov., R. Accad. Ital. C. Stud. Afr. Orient. Ital., 4, IV, p. 226 (1939).

Shrub very similar to the typical form. *Leaves* membranous, oblong-elliptic to ovate-lanceolate, acute or rarely blunt, cuneate at the base, petiole 1.5-6 mm long; lamina 3.5-6 cm long and 1-2 cm broad, glabrescent and green above, grey, glabrescent, or finely covered with white pubescence below; lateral nerves 2-6 (-7). *Flowers* dimorphic or trimorphic, ♂ e and ☿ i often occuring on one plant; the dimensions of the tube and lobes vary very considerably on one plant. *Corolla* tube 7.5-22 mm long; lobes 4.5-11 mm long and 1.5-3 mm wide. *Fruit* obovoid, contracted at the apex 3.5-4 mm long and 2.3-3 mm wide, purplish-brown, finally splitting into two cocci.

Abyssinia : Borana, Moyale, 2 m alta, fiori rocoso-fuoco, May 1937, *Cufondontis* 685 (W., FI.); Oda, Moyale, June 1951, *Kirrika* 81 (EA.).

Kenya : Chyulu foothills, in park country, small shrub with bright scarlet flowers, alt. 1100 m, May 1938, *Bally* 730 (EA.); Wusi, Teita Hills, scandent herb by riverside, with intense scarlet-vermilion flowers, stem tinged with red, alt. 1500 m, May 1930, *Napier* 1085 (EA., K.); Kibwesi, Ukamba, Felsige Ronnige Busch-steppe, Strauch 1-1.5 m hoch, alt. 1000 m, Dec. 1905, *Scheffler* 4 (S., W., BM., K., PRE., etc.) (this plant is a complete intermediate with *P. Bussei* and some leaves are 6.4 × 3 cm, but there are only 5 lateral nerves). The form also occurs at Kitui, Doinyo Subuk, and Fort Hall.

Tanganyika : E. Sth. Pares, Kisuani, growing in sandy soil on rocky mountain slope, common, scarlet-flowered shrub 6-8 ft high with slender virgate branches, alt. 1000 m, Feb. 1930, *Greenway* 2178 (EA., K., PRE.); Sigi, valley at foot of East Usambaras, straggling shrub growing close to typical *P. Bussei*, flowers bright scarlet, alt. 500 m, May 1950, *Verdcourt* 200 a (T.) (EA., K.);

Mlinga, Gebirge, Magrotto-Muhesa, Blütrot, 1.5 m, Strauch, alt. 670 m, Nov. 1917, *Peter* O.IV.145 (B.); Rondo Plateau, Lindi District, very attractive close-growing shrublet, in open spaces in closed forest, and forming low clumps somewhat scrambling to 6 ft in thicker undergrowth, flowers deep red, Feb. 1951, *Eggeling* 6039 (EA., K.). Sheets have also been seen from W. Usambaras (Lushoto, Ambangulu), Mwera Plateau, Lindi, and North Pares.

17c. **Pentas parvifolia** Hiern f. **spicata** Verdcourt f. nov.; a planta typica inflorescentiis ramosis, spicatis differt.

Fruits globose and obscurely ribbed, arranged in spikes even when young. Spikes about 4.4-10 cm long, subumbellately arranged.

Kenya : Bamburi Beach, scrub about 100 yds. from the shore, scandent shrub, flowers crimson, June 1934, *Napier* 3338 (EA.); Chyulu Foot Hills in orchard country, flowers scarlet, alt. 1100 m, May 1938, *Bally* 735 (T.) (EA.); Thika Falls, open bush near river along the road, shrub to 8 ft, spreading, flowers scarlet, Dec. 1932, *Napier* 2381 (EA.); ditto, June 1930, *Gedye* 269 (EA.)

General observation on the section Coccineae. — The variation in this section is such that any division into groups on morphological grounds always leaves intermediates. Extremes are however so different, and the intermediates sufficiently uncommon to render it essential to divide the section into two species at least. The most likely explanation of the variation is a hybrid swarm with local segregation, between the large — and small — leaved forms. There are several characters which recur in larger-leaved *P. Bussei,* which are more characteristic of *P. parvifolia.* This reticulation of characters is rather suggestive of a hybrid swarm. Typical *P. parvifolia* is a somewhat scandent shrubby plant with a good deal of branching, thin solid striated stems, congested nodes at the base of the branchlets, and all the ordinary internodes are shorter. At the other end of the complex there are plants of more erect habit, less branched stems with longer internodes and lacking the congested nodes. Altitude influences these characters as cultivation shows. There are definitely forms of *P. Bussei* with longer internoded hollow unbranched stems, larger stipule bases and a characteristic look about the leaves, including a coarser indumentum; these forms are prevalent in ' miombo ' woodland. Other forms are more branched and have solid stems. Dr. Eggeling has confirmed this

in the field, but examination of several hundred sheets has not shown any constant characters for separating these forms.

Section **Monomorphi** VERDCOURT sect. nov.

Herbae perennes vel biennes. Folia saepe membranacea. Flores albi saepi parvi, haud dimorphi; stylus exsertus. (G. — *P. angustifolia*).

This section shows a close relationship to the typical subgenus of *Otomeria*, but the inflorescence is more branched and the fruits are obtriangular as in true *Pentas*.

Species 3 with one subspecies, widely distributed in the southern part of Tropical Africa, Northern and Southern Rhodesia, Zululand, Angola, Usambaras foothills, Mafia, Pemba, Zanzibar and the Belgian Congo. — See fig. 28.

18a. **Pentas micrantha** BAKER, Journ. Linn. Soc. Lond., Bot., XXI, p. 408 (1885).

Herb ? Stem with internodes 6.5-10 cm long. *Leaves* narrowly elliptic, acute at the apex, very narrowly cuneate at the base into a petiole 1.5 cm long or subsessile; lamina 6.5-7.5 cm long and 1.5-3.5 cm wide, with scattered pubescence above and on the costa and lateral nerves below. *Inflorescence* a small lax cluster about 1.5 cm in width. *Calyx* tube 1 mm long and broad, lobes unequal the largest 4.5 mm long and 1.1 mm wide and the smallest 1 mm long and 0.25 mm wide. *Corolla* tube glabrescent 6.5-7 mm long, 0.6 mm wide at the middle, 1.2 mm wide at the base, and abruptly expanded at the apex to 1.5-2 mm for a distance of 1.5 mm; lobes 2.2 mm long and 1 mm wide. *Stigma* lobes 1 mm long exserted 0.5 mm. *Anthers* 1.5 mm long, tips 0.5 mm below the throat which is hirsulte. *Fruit* obtriangular, ribbed, 3 mm long and 4 mm wide. *Seeds* 0.75 mm long.

MADAGASCAR : Tanala Forest, *Baron* 3292 (T.) (K.); 310 (K.); Betsiraha, E. Coast, *Scott Elliot* 2233 (K.).

Observation. — I have seen very little material of this plant and there appears to be no material in the *Pentas* covers of the Paris herbarium.

18b. **Pentas micrantha** Baker subsp. **Wyliei** (N. E. Brown) Verdcourt comb. nov. — Fig. 33, I.

P. Wyliei N. E. Brown, Kew Bull., p. 123 (1901); Wood, Natal Plants, IV, t. 344 (1904?).

P. extensa K. Schum. ex Krause apud Mildbr., Wiss. Ergebn. Deutsch Zentr.-Afr.-Exp., 1906-08, II, p. 311 (1911) nomen nudum, excl. Kivu specimens.

Herb 45-60 cm tall with a short-lived perennial or biennial rootstock, which is little-branched, 7.5-10 cm long and 9-10 cm wide in extent; secondary rootlets sparse, fine, at right angles to the main roots. *Stems* woody, grey-brown, leafy, terete or quadrangular, with a somewhat reticulate soft epidermis, 2.5-6 mm in diam., branched or simple, branchlets green, hairy; internodes 1.5-14 cm long. *Stipules* hairy, with 4-7 setae up to 6 mm long from a base 0.5-3.5 mm long. *Leaves* ovate to ovate-oblong or elliptic, thin and membranous, 5.5-13 cm long and 2.6-6.3 cm wide, acute at the apex, concavely cuneate at the base into a petiole 0.3-3.5 cm long; lamina sparsely or moderately pubescent above and on the venation below; lateral nerves 6-11. *Inflorescence* trichotomous, lateral components on peduncles 1-15 cm long, the terminal head sessile or peduncle up to 6.5 cm long, individual cymes lax, few-flowered about 2-3 cm wide; pedicels about 1.5 cm long. *Calyx* tube hairy, obovoid, 1-1.5 mm long and 1.25 mm wide, lobes unequal, hairy, longest lanceolate 4-8 mm long and 1-2 mm wide, rest 1.3-2.3 mm long and about 0.5 mm wide. *Buds* characteristically clavate, tube 0.7 mm wide, expanding abruptly at the apex to 1.5 mm; the limb part angled or fluted due to the costae of the lobes. *Corolla* tube hairy, 6.75-10 mm long and 0.8 mm wide expanded at the apex to

Fig. 33. — *Pentas zanzibarica* (Klotzsch) Vtke : A, bud and ♀ e corolla (× 5) (from *Verdcourt* 224); B, ditto ♂ e (× 5) (from ditto); *P. Bussei* Krause : C, flower (4 stamens removed) (× 2.5) (from type); *P. zanzibarica* Vtke var. *pembensis* Verdcourt : D, corolla (× 5) (from type); *P. Bussei* Krause : E, corolla (× 2.5) (from *Verdcourt* 317); F, fruit split into cocci with persistent calyx lobes (× 2.5) (from ditto); G, stigma (× 5) (from ditto); H, throat hair and external hair from corolla (× 10) (from ditto); *P. micrantha* Baker var. *Wyliei*, (N. E. Br.) Verdcourt : I, bud and flower with two corolla lobes removed (× 5) (from *Verdcourt* 305).

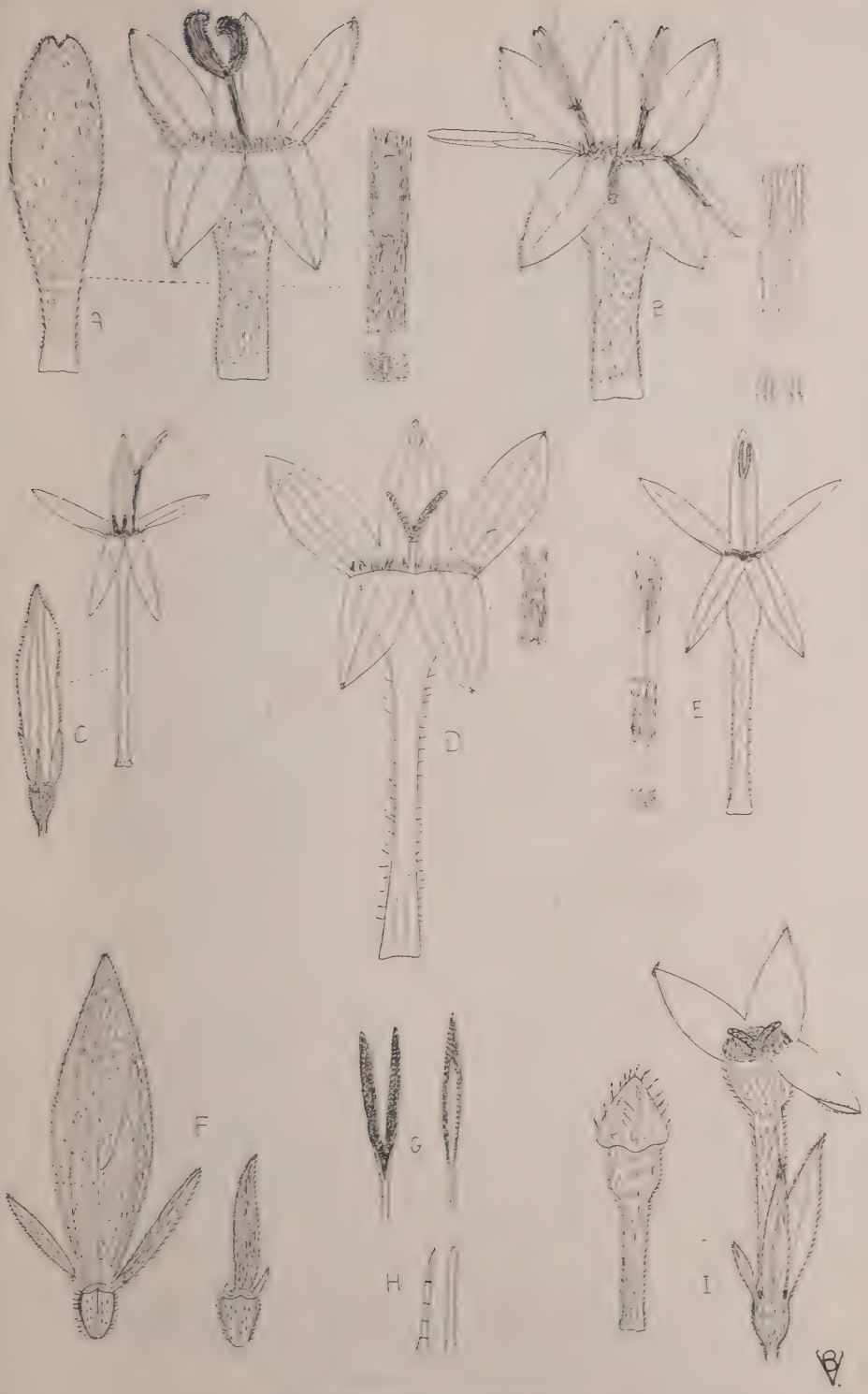

Fig. 33, *see explanation at bottom p. 308.*

1.5-2 mm; dilated portion urceolate 1.5-2 mm long; lobes ovate, acute, 1.8-3 mm long and 1-1.75 mm wide, hairy externally on the costae, minutely papillate internally. *Style* glabrous exserted 0-2.5 mm, lobes of the stigma 0.75-1.5 mm long exserted 1-1.3 mm, almost immersed in the throat hairs. *Anthers* 1.3-1.6 mm long; throat hairy, tube glabrous below the anthers for 1 mm, and the rest hairy inside. *Fruit* pale, glabrous or pubescent, large in comparison with the size of the flowers, 2.5-5 mm long and broad, oblong-ovoid, laterally compressed, prominently 10-ribbed, beak papillate 1.5-2 mm tall, intravalvular opening 1.2 mm long. *Seeds* minute 0.5 mm long, bluntly angular, pitted with hexagonal depressions.

Tanganyika : E. Usambaras, Sigi, flowers white, Sept. 1916, *Zimmermann* 7876 (EA.); Kisiwani, growing by the side of a stream with *Gynura* and *Costus*, herb to 2 ft, with white flowers, alt. 500 m, Aug. 1950, *Williams* 72 (EA., K.); Longusa to Sigi, weiss, alt. 275-500 m, May 1926, *Peter* 40078 (B.); there are reveral other sheets collected by A. Peter in the B herb. from the same area. — Kulumuzi, Derema, Pandeni, Kwamtilli etc.; Mt. Mlinga, on the face of a small rock outcrop in bushland and native cultivation zone, herb to 18" from a woody short-lived perennial rootstock, flowers very small, white, but costae of corolla lobes greenish below at the apex, alt. 830 m, Aug. 1950, *Verdcourt* 305 (EA., K.); *A. Peter* collected several specimens of this species from Mlinga and at Magrotto nearby (B.).

Zanzibar : Panga Juu, erect herb to 3 ft, flowers white, June 1930, *Vaughan* 1345 (EA., K., BM.).

Pemba : Pandani, a white flowered much-branched perennial herb growing on the edge of woodland, fairly common, Dec. 1930, *Greenway* 2723 (EA., K.).

Mafia : A white flowered short-lived perennial herb up to 2 ft tall locally dominant in wet grey sandy soil in association with Cyperaceae in seepage places, *Greenway* 5160 (EA., K.).

Portugese East Africa : Dondo, near Beira, *Cecil* 252 (K.).

Zululand : Ungoya, herb with white flowers, alt. 660 m, April 1899, *Wylie* in herb. *Wood* 7590 (T.) (PRE., NH., K., BOL.,

US.); Ngora, white flowers, *Wylie* in herb. *Wood* 8480 (NH., PRE.); Machisugu, locality not traced perhaps in another territory, Nov. 1898, *Schlechter* 12118 (K., BOL.).

Observation. — 1. — The Tanganyikan material of this distinct plant has invariably been referred to *P. zanzibarica* but is utterly distinct in the field. In the herbarium the small characteristically shaped flowers with short lobes, and the long petioles will serve to distinguish it. It resembles *P. zanzibarica* var. *pembensis* and var. *membranacea* but they have larger flowers. N. E. Brown does not mention the characteristic tenuousness of the leaves nor does Wood, whose description is accompanied by a figure showing a coarse plant quite unlike *P. m. Wyliei*.

This subspecies is restricted to the East Coast as would be expected from its Madagascar affinities, and occurs on the E. Afr. Islands, Usambara foothills, Zululand and Portugese East Africa.

19. **Pentas herbacea** (Hiern) K. Schum., Just Jahresb., XXVI, p. 392 (1900).

Neurocarpaea herbacea Hiern, Cat. Afr. Plants Welw., I, 2, p. 439 (1898).

Pentas sp. nov. Hiern MS in Scott Elliot, Journ. Linn. Soc. Bot. Lond., XXXII, p. 437 (1896).

Otomeria herbacea (Hiern) Hiern ex Good, Journ. of Bot., LXIV, suppl. II, p. 3 (1926).

Herb, branched, about 60 cm tall, root system of small extent, 9 × 6 cm, annual or biennial. *Stem* 3 mm in diam. at the base. *Leaves* very thin, oblong-elliptic acute, 8-14 cm long and 3-6.5 cm wide, cuneate at the base, petiole 3-20 mm long; lateral nerves 9. *Inflorescence* a small head. *Calyx* tube 2 mm long and wide, lobes deltoid unequal, largest 3 mm long and 1.5 mm wide. *Corolla* tube 4.5 mm long, 1.5 mm wide at the base, 0.8 mm wide in the middle, expanded apically to 1.8 mm, lobes 0.9 mm long and 0.6 mm wide, tips inflexed. *Style* roughened, 3.8 mm long overall, stigma lobes 0.9 mm long, tips just exserted. *Anthers* 1 mm long just included; throat densely hairy and tube hairy below, papillate at the base. *Fruiting inflorescence* branched consisting of an umbel of 4 spikes, together with several truly terminal flowers in the axil; spikes

9-21 cm long. *Fruits* 3.4-4 mm long and broad, oblong-obtriangular, not elongate, calyx lobes persistent, reticulated and venose at their bases; beak 1.5 mm tall.

French Guinea : Ngoma, Leconte s.n. (P.).

French Equatorial Africa : Oubangui, Waka, *Tisserant* 2361 (P.).

Belgian Congo : Luki, forest roads, 1.1 m tall, with white flowers, Feb. 1947, *Devred* 3208 (BR.); Kipaila, sth end of L. Moero, March 1908, *Kaessner* 2526 (BM.).

Angola : Golungo Alto, in palm groves near the R. Cuango at Carambola, Feb. to June 1855, *Welwitsch* 5304 (T.) (BM., K., COI.); Granja de S. Luiz, Cazengo, sitios incultos, e margens de caminhos, May 1912, *Gossweiler* 5358 (BM., COI.).

Observations. — 1. — Although Good did not make a valid new combination it is probable that he intended to since this species although closely allied to *P. micrantha* is almost equally allied to *Otomeria micrantha,* but has a branched inflorescence and obtriangular fruits. Only macrostylous plants have been seen.

2. — This species is widely distributed but local in West Africa. It has been recorded from the Sudan by Broun, Massey and Andrews but no specimens are cited or have been seen.

3. — The following sheet represents either a variety or closely allied new species of which further material is required. It is much coarser than the typical plant, stems 8 mm, in diam., leaves thicker and petioles shorter.

Belgian Congo : Angodia, Uele, 150 km N.E. Buta, Stanleyville, grande herbe ramifiée, fl. violet pâle, May 1931, *Lebrun* 2939 (BR.).

20. **Pentas angustifolia** (A. Rich. ex DC.) Verdcourt comb. nov. — Fig. 34, A & B.

Sipanea angustifolia A. Rich. ex DC., Prod., IV, p. 414 (1830); Mém. Soc. Hist. Nat., Paris, V, p. 276 (1834).

Pentas Woodii Scott Elliot, Journ. Linn. Soc. Lond., Bot., XXXII, p. 434 (1896).

P. transvaalensis Bär, Vierteljahrssch. Nat. Ges. Zurich, LXVIII, p. 433 (1923).

P. carnea Benth. var. *Welwitschii* Scott Elliot, loc. cit.; Good, Journ. of Bot., LXIV, suppl II, p. 2 (1926).

Neurocarpaea lanceolata Auct. non (Forsk.) Britt.; Hiern, Cat. Afr. Plants Welw. I, 2, p. 438 (1898).

Herb, perennial, 40-100 cm tall, rootstock little branched, with about three main roots, 6-12 cm long. *Stems* woody, about 4 mm in diam., brown or green above, terete, striate, branched, tomentose with white or brownish hairs; internodes 1.5-17 cm long. *Stipules* with 5-8 setae, 4-10 mm long from a short base. *Leaves* lanceolate, frequently very narrowly so, acute, cuneate basally, petiole 3-16 mm long; lamina thickish or membranous, pubescent above and on the venation below, 5.5-13 cm long and 1-3 cm wide; lateral nerves 6-14, strongly ascending at the margins, prominent below, venation a little reticulate. *Inflorescence* capitate in flower, becoming spicate and laxer in fruit, up to 6 × 4 cm in extent. *Flowers* geminate, not dimorphic. *Calyx* tube hairy 2 mm long, lobes unequal lanceolate to elliptic, 2.5-16.5 cm long and 1-3 mm wide, pubescent on the face, ciliate at the margins, venation prominent on the back. *Corolla* tube 12-18.5 mm long, glabrescent or pubescent, 0.5-0.9 mm in diam. at the middle, expanded above to 2-3 mm wide forming a dilation 2-4 mm long, lobes 2-6 mm long and 0.8-2.5 mm wide, oblong-ovate, acute or rounded, glabrous or pubescent: throat and tube densely hairy. *Style* glabrous exserted 1.25-3.5 mm or rarely included; stigma lobes 1.5 mm long always exserted. *Anthers* 2 mm long. *Fruits* pubescent 4-5.5 mm long and 3.5-4.5 mm wide, somewhat constricted above, beak 1-1.5 mm tall; finally dehiscent into two cocci; the truly terminal solitary one largest, 6 mm tall and 4.5 mm wide.

Northern Rhodesia : Batoka Plateau, herb to 1.5 ft tall, alt. 1330 m, Feb. 1907, *Allen* 4302 (GOV.); Broken Hill, Aug. 1911, *Fries* 214 (UPS, very atypical); Mazabuka, *Rogers* 26128 (S.).

Southern Rhodesia : Salisbury, perennial herb with white

flowers, alt. 1330 m, Feb. 1920, *Eyles* 2048 (GOV., PRE., UPS., K., etc.); Umsweswe, stony ground, 3 ft., white, May 1921, *Borle* 35281 (PRE.); Sinoia, near Sinoia Cave, down in the cave entrance, very shady and moist, herb with white flowers, April 1948, *Rodni* 4363 (PRE., Univ. Calif.); Mazoe, herb 2-3 ft tall, corolla white, anthers brown, style white, stigma violet, anthers concealed by a mass of white hairs filling the throat of the corolla, and curving over and closely surrounding the exserted pistil, alt. 1460 m, March 1906, *Eyles* 275 (BOL., BM., GOV.). Many other specimens have been seen from Trelawney, Miami, Matopos, Bulawayo, Gwelo, Odzani River Valley, and Umtali.

Transvaal : Shilouvane, pentes du Mt Marovougne, Jan., *Junod* 873, 2330 (T. of *P. transvaalensis*) (Zurich); Barberton, in bush, alt. 960 m, May 1889, *Thorncroft* 49 (NH., PRE.); Barberton, in scrub at base of mountain, white flowers, alt. 960 m, Jan. 1890, *Galpin* 749 (BOL., PRE., K.); ditto, bushy hillsides, *Wood* 4152 (K., NH.) (lectotype of *P. Woodii*).

Angola : sine loco, no collector's name (T.) (P.); Bei Malolla Katumba, sandiger Boden unter schräggeneigten Felsblöcken der Kuppe, alt. 1360 m, June 1900, *Baum* 989 (B+., W. K. Schumann wrongly records this as *P. arvensis* in his enumeration of Baum's plants); Between Serra Ferreira de Amaral and Caconda, Vale do Cusave, Cunene, Ganguela, flowers white, *Gossweiler* 3838 (BM., COI.); Cusaba, Cunene, ' Mumua Woods ', frequent on ant hills, Feb. 1906, *Gossweiler* 3444 (COI., BM.); Caconda, Benguela, woodland, corolla white, 1907, *Gossweiler* 4337 (COI., BM., cited by Good as *P. carnea* var. *Welwitschii*); Huilla, in wooded meadows by R Monino, Dec. 1859, *Welwitsch* 5308 (T. of *P. carnea* var. *Welwitschii,* corolla tube only 8.5 mm long but abnormal) (COI., BM.).

Observations. — 1. — *Sipanea angustifolia* has always been misinterpreted and referred to *Virecta* by all authors; yet the excellent type is available at Paris. No one could have looked at it since there is no possible doubt as to its identity. The type of Bär's species has also been seen and is identical with *P. angustifolia* as the excellent description suggested. K. Schumann identified an isotype of *P. carnea* var. *Welwitschii* as *P. zanzibarica* (COI.), but there is no doubt that it is an abnormal form of the present species with a short corolla tube.

2. — This species is restricted to south Tropical Africa and occurs in Angola, S. W. Africa, Rhodesia (common), and the Transvaal.

Section **Hirtistylus** Verdcourt sect. nov.

Herbae perennes, foliis oppositis. Calycis lobi 6-7. Corollae tubus albus, c. 5 cm longus. Stylus exsertus, dense albo-muriculatus ad apicem pilosus. (G. *P. caffensis*).

The single species included here shows affinities with the subgenus *Longiflora* and occurs in Abyssinia. See fig. 28.

21. **Pentas caffensis** Chiov., Atti R. Accad. Ital., Mem. Cl. Sc. Fis., Mat. Nat., XI, p. 33 (1940).

Herb, about 75 cm tall. *Stems* woody, 4-5 mm in diam., densely covered with short multicellular hairs; internodes 3-8.5 cm long. *Stipules* with about 6 flat linear setae 6-7 mm long from a short base, central three setae connate basally. *Leaves* ovate-elliptic, paired, acute at the apex, cuneate at the base, subsessile, 8.3 cm long and 3.4 cm wide, pubescent above and below; lateral nerves 9-13, prominent below. *Inflorescence* a dense head of about 25 flowers, sessile in the uppermost pair of leaves. *Calyx* tube pubescent, lobes unequal, slightly falcate, 6-7 in number, foliaceous, pubescent, the largest up to 9 mm long and 2.5 mm wide. *Corolla* tube densely hairy with long matted white hairs, 4-6.5 cm long, lobes 5-6, lanceolate, 10-10.5 mm long and 3-3.5 mm wide, densely hairy outside, and with a few long throat hairs scattered over the inner face which is not margined. *Style* exserted 5-6 mm densely covered with whitish scaly emergences and with a few longer true hairs below the stigma; stigmatic lobes narrowly elliptic, 2-2.5 mm long and 0.5-0.75 mm wide; just above the point of insertion of the style in the disc there is an annular collar on the style, but this may not be constant. *Anthers* included.

Abyssinia : Caffa, pressa il Gogeb, Aug. 1937, *Pajella* 275 (T.) (FI.).

Observation. — I have examined the type of this species, the only specimen known to me, and the original description, which is not accurate, has been modified. It is not likely to be confused

with other species. It differs from *P. decora* in its paired leaves, hairs on the style and totally different calyx lobes, from *P. lanceolata* by the longer flowers and style indumentum and from *P. hindoioides* by the much denser heads and hairs on the style.

Section **Papillopilosa** VERDCOURT sect. nov.

Herbae perennes, erectae, vel subrepentes, pilis brevissimis vel papillis obtectae. Folia subsucculenta in siccitate nigra et rugulosa. Flores dimorphi, parvi vel majusculi. (G.-*P. concinna*).

In macrostylous forms the anthers are set much lower down in the tube than is usual in the other sections. Species 3, restricted to Abyssinia and Somaliland. — See fig. 28.

22. **Pentas concinna** K. SCHUM., Engl. Bot. Jahrb., XXXIII, p. 335 (1903).

Herb 5-45 cm tall, woody basally, and from the tortuous branching, is certainly a repent or sprawling plant. *Stems* with striate epidermis, glabrous and chestnut-brown beneath, new shoots and leaves dry blackish-green and are covered with very short simple or two-celled bristly papillate hairs; internodes 0.7-2.8 cm long. *Stipules* with 2-3 deltoid lobes, 0.8 mm long. *Leaves* small, narrowly ovate, bluntly acute, narrowly cuneate at the base, petiole 5-7 mm long; lamina 2.5-3 cm long and 1 cm wide covered with papilla hairs; lateral nerves 5. *Inflorescence* few-flowered congested, pedicels finely papillo-tomentose, 2.5 mm long. *Calyx* tube finely tomentose, lobes unequal, oblong-lanceolate or deltoid, 2-3 larger, 4 mm long and 0.75-1 mm wide, and 2-3 smaller 1.5 mm long and 0.5 mm wide, papillate and ? glandular, containing raphides. *Corolla* tube striate, glabrescent save for a very few papilla-hairs, 11-12 mm long, 1.5 mm wide at the base, 1 mm wide at the middle, and dilated at the apex in ♀ e forms to 1.8-2.5 mm for a distance of 4 mm, lobes oblong acute 3.5-5 mm long and 1.75 mm wide. *Flowers* ♂ e : anthers 1.5 mm long exserted for 2 mm. *Flowers* ♀ e. — anthers 1.6 mm long the tips being 2.75-3 mm below the throat; throat densely hairy the rest of the interior of the tube less so. *Style* roughened exserted 3.3 mm epidermis soft and readily separable, stigma bifid, lobes 1.5 mm long. *Fruit* 2.3-3 mm long and 2.2 mm broad, papillate externally, the calyx tube readily separable; between the calyx tube and the pericarp silvery

raphides are very dense; one fruit contained only 10 seeds but some may already have been lost.

Somaliland : The Surud, on boulders all over the north face, small pink-flowered herb 2-15" tall, above alt. 1330 m, Jan. 1945. *Glover* and *Gilliland* 607 (neotype) (EA.); Ahlgebirge, alt. 500-1000 m, April 1875, *Hildebrandt* 1540 (BM., K.); Sugli, Al Hills, 10°58' N., 48°53' E., in deep depression on top of boulder partially shaded by bushes, northern hill slope, plant 3" tall, flowers pink, alt. 1670 m, Nov. 1929 *Collenette* 272 (K.).

Abyssinia : Gara Mulata, in einer Felschlucht mit Gebusch, March 1900, *Ellenbeck* 563* (B.–); Dschebel Hakim, May 1900, *Ellenbeck* 881* (lectotype) (B.+).

Observations. — 1. — I have not seen the type of this species which was destroyed at Berlin. There is no doubt that K. Schumann's species belongs to this section but the plant which I have identified with it differs in several details from K. Schumann's description. The calyx lobes are 4 mm long and not 6-7 (within the possible variation); the leaves are 3 × 1 cm whereas the range given by Schumann is 2-7.5 × 0.5-2.3 cm. Moreover K. Schumann's plant was said to be truly scandent and came from E. Abyssinia, whereas the other is repent and grows in Somaliland. I have not however seen any other plants which in any way match the description and the little differences mentioned are not unlikely. It is possible of course that *P. concinna* has never been recollected; it has not been possible to visit the inaccessible type locality.

2. — This species occurs in Somaliland and Abyssinia in rocky places.

23. **Pentas pauciflora** Baker, Kew Bull., 1895, p. 215 (1895).

Otomeria calycina Hiern, Journ. of Bot., XXXVII, p. 58 (1899).

Herb, decumbent in habit (?). *Stems* woody, some shoots about 3 cm long with leaves densely conferted; others with internodes longer and leaves larger; internodes of former 1 mm long, of latter 1-4 cm. *Leaves* of former 2.8 cm long and 0.65 cm wide, of latter 4.5-9.5 cm long and 1.7-3.2 wide, elliptic, bluntly acute at the apex, narrowly cuneate at the base, petiole 2-8 mm long; lamina drying blackish-green and wrinkled above; indumentum a little

longer than in the other two species in the section, somewhat asperulous above, softer below; rarely glabrescent; lateral nerves 5, prominent. *Inflorescence* terminal combined with axillary ones from the apical axils, each about 3-flowered. *Calyx* lobes oblong more or less unequal, 2-17 mm long and 1.5-3 mm wide with peculiar tubercle-based hairs. *Corolla* tube pubescent 3.3-8 cm long and 1.5 mm wide at the middle, dilated at the apex to 2 mm, lobes 6-12 mm long and 2-5 mm wide, joined basally for 1.5 mm, the throat hairs extending over this portion. *Style* roughened-tomentose, exserted 7.5 mm, stigmas 2 mm long. *Anthers* 3.7 mm long, tips about 6 mm below the throat. *Fruits* obtriangular, 5 mm long and 4 mm wide, beak 1 mm tall.

Somaliland : Goetten, bushy plant in the rocks, flowers pure white, March, *Edith Cole* s. n. (T.) (K.); Near Dimoleh, *Gillet* and *Aylner* s. n. (T. of *Otomeria calycina*) (BM.); Fadona, flowers purplish-pink, Nov. 1919, *Godman* 36 (BM.).

Observation. — This species shows affinities with the subgenus *Megapentas* and also has some *Otomeria* characters. It is also quite similar to some Arabian specimens which I have referred to *P. lanceolata*.

24. **Pentas glabrescens** Baker, Kew Bull., 1895, p. 215 (1895).

Otomeria rupestris Hiern, Journ. of Bot., XXXVII, p. 59 (1899).

Herb or shrub creeping on the rocks, rootstock thick, 14 cm long and 1 cm wide. *Stems* woody, brown, dichotomously branched about 12 cm tall, prominently wrinkled longitudinally, 2.5 mm in diam., internodes uniformly short 1-2.5 cm long. *Stipules* with about 4 setae up to 2 mm long from a short base. *Indumentum* scanty or nil on the leaves, stem and inflorescence; where present consisting of very short bristly barely visible non-septate hairs. *Leaves* drying black and characteristically wrinkled above, rather thick, elliptic, acute at the apex, narrowly cuneate at the base, subsessile 3.5-6.5 cm long and 1.4-2.3 cm wide; lateral nerves obscure, about 5. *Inflorescence* few-flowered, trichotomous 3.5 cm across, flowers dimorphic. *Calyx* lobes unequal, oblong-lanceolate, often three larger and foliaceous 7-10 mm long and 1-1.5 mm wide, the rest smaller about 4 mm long and 0.9 mm wide. *Corolla* tube 15-35 mm long, pubescent, lobes 6-10 mm long and 2.5-3.3 mm

wide, connate at the base for about 0.8 mm and with throat hairs spreading over this portion. *Flowers* ♂ e : stamens exserted 2 mm, anthers 3 mm long. *Fruiting inflorescence* somewhat spicate, about 3 cm long. *Fruits* 5 mm long and wide, ribbed, beak 1-2.5 mm tall.

Somaliland : Golis Range, flowers star-like, *Lort Phillips* s.n. (T.) (K.); Hammar, Feb., *Edith Cole* s. n. (K.); Wajia, creeping on bare rock, flowers mauve, alt. 2100 m, *Gillet* s. n. (T. of *Otomeria rupestris)* (BM.). Berbera, 1905, *Bury* 50 (BM.); Habrawal, *Donaldson* s. n. (BM.); Golis Range, alt. 1910 m, *Drake Brockman* 544 (K.); Gan Libah, on rocky slopes, small shrub with dark green leaves and pale pink flowers, alt. 1330 m, June 1949, *Bally* 7310 (K., EA.).

Observation. — This species which retains several *Otomeria* characters is well distributed in western Somaliland.

Section **Pentas** s.s.

Herbs or subshrubs. Flowers markedly heterostylous, dimorphic or trimorphic, white or brightly coloured. Calyx lobes foliaceous, unequal. Indumentum of long multicellular hairs. Style glabrous or slightly roughened. Specific limits not very well defined. (G. as for subgenus *Pentas* q. v.). See fig. 29.

25a. **Pentas zanzibarica** (Klotzsch) Vatke, Oest. Bot. Zeitschrift, XXV, p. 232 (1875). — Fig. 33, A & B.

Pentanisia zanzibarica Klotzsch in Peters, Reise Mossambique, I, p. 286 (1862).

Pentas purpurea Auct. non Oliv.

P. Stolzii K. Schum. and K. Krause, Engl. Bot. Jahrb., XXXIX, p. 522 (1907) p.p. quoad *Uhlig* 270 cit.

Herb or shrubby herb about 1 m tall, with 1-2(-6) stems from a rather woody unbranched rootstock 12 cm long and 5-20 mm in diam. *Stems* greenish or purple-tinged, terete 3-5 mm in diam, mostly strict and unbranched, hairy, often densely so above; internodes 3-20 cm long. *Stipules* with about 7 setae, 4-9 mm long from a short

base. *Leaves* lanceolate to ovate usually intermediate, paired, acute apically, cuneate at the base, petiole 0-11 mm long usually short; lamina dark green above, paler below, 4-11.5 cm long and 1.4-3.7 cm wide, hairy above and below; lateral nerves 5-11(-14). *Inflorescence* lax or somewhat globose, terminal and axillary, 2-6.5 cm across, with small filiform bractlets 6 mm long; peduncles 0-15 cm long. *Calyx* tube hairy 1.3 mm long and 1.5 mm wide, lobes unequal 1-7 mm long and 0.5-1.5 mm wide. *Flowers* ♀ e : corolla tube (4-) 6-9 (-10) mm long, hairy, lobes 1.5-5 mm long and 0.8-2.7 mm wide, oblong-elliptic, minutely papillate internally; style glabrous or roughened, exserted 0.5-3.5 mm, stigma lobes 2-2.5 mm long; anthers 1.5-2.3 mm long, apices about 1 mm below the throat; throat densely hairy, rest of interior of tube sparingly hairy. *Flowers* ♂ e : similar, 2.5 mm wide at the apex, anthers 2-2.5 mm long exserted 2-3 mm; style included, 3.5 mm long, stigma lobes not thickened 2.6 mm long. *Fruit* pubescent, 3-4 mm long and wide, beak 1-2 mm tall, fruiting pedicels up to 8 mm long.

Uganda : Bwera, Ruwenzori, herb with very pale lilac flowers, alt. 1670 m, Oct. 1940, *Eggeling* 4079 (EA., not typical); Bwamba Pass, Ruwenzori, alt. 670 m, Nov. 1927, *Piemeisel* and *Kephaert* s. n. (US.).

Kenya : Rabai, alt. 330 m, Aug. 1941, *van Someren* 7176 (EA.); Nakuru, Menengai Crater, rocky outcrop in open grassland, violet scentless flowers, herb to 2 ft, alt. 2100 m, *Honoré* 227 (EA.); Londiani, in forest glades and at forest edge, herb to 3.5 ft, flowers mauve, alt. 2600 m, *Graham* LD. 894 (EA., K.); Kwale, coastal grassland, small shrub to 4 ft, flowers blue or greenish-blue, ' kivuma nyuki ' (Kiswah. and Kidigo), Aug. 1929, *Graham* 560 (K.); Makadara, Shimba Hills, small shrub in grassland and in open bush, up to 4 ft tall with bright mauve to white flowers, Dec. 1928, *Graham* 1692 (EA., K.). Specimens have also been seen from Naivasha, Visoi, and Endebess.

Tanganyika : Mt. Tongwe, grasslands, herb of very strict habit, stem tinged purple, corolla tube purplish, lobes whitish, filaments blue, alt. 330 m, June 1950, *Verdcourt* 266 (EA., K., PRE., MO.); E. Usambaras, Tengeni, growing in association with *Panicum maximum*, purple-flowered herb up to 6 ft tall, Dec. 1929, *Greenway* 1914 (EA., K., PRE.); Ndola, western edge of the E. Usambaras,

growing in *Cymbopogon-Themeda-Hyparrhenia* grassland with *Helichrysum*, etc., strictly erect unbranched herb up to 3 ft tall, stems purple-brown, flowers dimorphic, lilac-blue, alt. 1080 m, May 1950, *Verdcourt* 224 (EA., K.); Kilimanjaro, *Abbot* 239418 (US.); Useguha, Hale-Kwamke, 1 m hoch, Bl. lila, alt. 238 m, May 1926, *Peter* 40472 (B.); Uluguru Gebirge, Morogoro-Mission Schlesien, Bl. lila, alt. 530-1200 m, Nov. 1925, *Peter* 31949 (B.). Numerous other sheets have been seen from Moshi, Arusha, Kissangara, Dareda-Babati, Bunduki, E. shores of L. Tanganyika, Mpwapwa, Tengeni, and Mt. Mlinga.

Belgian Congo : Miti, Jan. 1946, *Hendrickx* 3774 (EA.); Shores of L. Kivu at Goma, July 1939, *Smuts* 2203 (PRE.).

Zanzibar : sine loco, *Peter* s.n. (T.) (B.+); Kidichi, herb to 2 ft with mauve flowers, common in cultivated areas, Nov. 1930, *Vaughan* 1661 (EA.); Tunguu, herb 2-3 ft tall, flowers mauve, *Vaughan* 30 (K., BM.); without locality, May 1929, June 1930, *Taylor* 8 and 229 (EA.); Auf trocknen Krautwiesen, suff., 1 m alt., fl. lilac, Sept. 1873, *Hildebrandt* 1128 (neotype) (W., K.) (cited by Vatke).

Observations. — 1. — The nomenclature of this species and the difficulties attending it have already been discussed under *P. Bussei*.

2. — This species is closely allied to *P. lanceolata*, particularly to some of the shorter-flowered subspecies, and intermediate plants occur.

3. — It is typically found in grasslands at fairly low altitudes, and occurs in Kenya, Uganda, and Tanganyika, Zanzibar, and East Belgian Congo.

Key to the varieties of *P. zanzibarica*.

Note. — These varieties are closely allied and a watertight key is not feasible. The following is but a guide.

A. Herb with leafy stems, flowers whitish. Endemic on Mt Mlanje, Nyasaland . . . . . 25g. var. *milangiana*.

B. Herbs with stems less leafy :

I. Corolla tube 5-9 mm long, white. Kigezi, Uganda . 25e. var. *intermedia*.

II. Corolla tube 5-11 mm long, red or lilac, if white and under 9 mm then only as albinos in a coloured population :

a. Leaves membranous and/or larger, 9-14.5 × 3.3-5.8 cm, petioles 1.2-7 cm long :

1. Flowers white, tube 10-11 mm long, leaves thin. Pemba . . . . . 25d. var. *pembensis*.

2. Flowers not white, tube 6-10 mm long, leaves thick or thin. Mainland forms :

   α. Corolla tube blue-mauve, tube 9.5-10 mm long. Leaves thin. . . . 25c. var. *membranacea*.

   β. Corolla tube pinkish, 6 mm long. Leaves thicker . . . . . 25f. var. *latifolia*.

b. Leaves thicker, usually smaller 4-12 cm × 1.4-5.8 cm, petioles 0-2 cm long. Flowers red in the broader-leaved forms :

   1. Flowers blue, lilac, mauve, or rarely whitish . 25a. *zanzibarica* s. s.

   2. Flowers bright red-crimson or shades of red . . 25b. var. *rubra*.

25b. **Pentas zanzibarica** (Klotzsch) Vatke var. **rubra** Verdcourt var. nov.; a planta typica floribus rubris differt.

P. zanzibarica Auct. non (Kl.) Vatke s.s.; Robyns, Flore Sperm. Parc Nat. Albert, II, p. 330 (1947) excl. *Fries* 1668.

P. lanceolata Auct. non (Forsk.) Deflers; Robyns, loc. cit., p. 329.

Herb or shrub 0.5-2.6 m tall. *Leaves* bullate ovate-elliptic to lanceolate, 8-13 cm long and 2-5.8 cm wide; lateral nerves about 11. *Inflorescence* typically very floriferous consisting of a single terminal flower at the top of the rachis, two axillary inflorescences from the apical node at base of rachis, and 7 alternate inflorescences emitted from the terminal rachis supported by stipule-like bractlets. *Buds* in Kigezi forms, drying with a marked collar around the throat. *Flowers* glabrescent or with dense purple-red hairs in typical material. *Corolla* tube 5-10 mm long. *Style* white, stigmas red-purple in macrostylous forms. *Fruits* obtriangular 5.5 mm long and 4.5 mm wide.

Uganda : Bwera, Ruwenzori, herbs with reddish pink, dianthus pink, or crimson flowers, alt. 1670 m, Oct. 1940, *Eggeling* 4074, 4078, 4080 (EA.); Bufumbira, Kigezi, grassland, herb to 3 ft, flowers bright red, ' kalabukuwa ' (L'manda), alt. 2160 m, Sept. 1946, *Purseglove* 2129 (K., EA., KAW., ENT.); Kigezi, Nakalembe-Mushogiri path, on L. Mutanda, grass-covered steep hill side with scattered shrubs, shrub 3-8 ft tall with carmine flowers, alt. 2330 m, Jan. 1933, *Rogers* and *Gardner* 297 (EA.); Chakafi, near Mt Muhauva, Kigezi, small shrub 1-3 ft tall, blood red flowers, alt. 2160 m, Oct. 1929, *Snowden* 1519 (K., EA.) (some duplicates of this sheet are pathological and have aborted flowers).

Kenya : Chyulu foot hills, orchard country, herb to 5 ft with scarlet (sic !) flowers, alt. 1330 m, *Bally* 660 (EA.); cultivated in Nairobi, branched shrub to 4 ft, leaves dark green, bullate, flowers bright crimson, alt. 2000 m, Nov. 1950, *Greenway* 8467 (T.) (EA., K.).

Tanganyika : South East shoulder of Meru Mt, flowers bright pink, alt. 2330 m, 1943, *Elliot* 9764 (EA.); Meru, Aruscha-Engare Olmotonj, Bl. rot, March 1914, *Peter* O.I.52 (B.). Specimens have also been seen from Tabora, Monduli, and Moshi.

Belgian Congo : Mikeno-Mushumangalo, forest on lava plains, suffrutex 0.4-1.3 m, hairs on stem red, flowers red with red hairs in throat, stigma greenish-violet, *Louis* 4987 (BR.); Tschibinda, savannahs and roadsides, flowers blood-red, Aug. 1940, *Hendrickx* 1336 (PRE.); Vulcan Kirungu, Aug. 1908, *Kassner* 3206 (K.); Kamelungu, *de Witte* 1550 (BR.); Kisenyi, plaine de lave, *Robyns* 2477 (BR.); Kabasha, *de Witte* 1163 (BR.); Ruwenzori, *Bequaert* s. n. (BR.); ditto, *Michot* 20 (BR.); Kivu, Humbert 7871, 7949 (BR.); ditto, *de Witte* 1230 (BR.); Rutshuru, *Lebrun* 8975 (BR.); Kabila, Lac Ndaraga, *de Witte* 1494 (BR.).

Observations. — 1. — This variety is perhaps artificial but the Kigezi and Kivu specimens have a very distinct facies, and may be separable after study in the field from other red forms which are only mutants in ordinary populations. The plant is widely cultivated in Nairobi, and is much misidentified as *P. coccinea* i. e. *P. Bussei*. It has a much coarser indumentum than that species and the fruits are totally different; the flower colour is also different, being red-crimson instead of scarlet-vermilion. It grades with *P. lanceolata* subsp. *Quartiniana* var. *leucaster*.

2. — This variety occurs in Kenya, Uganda and Tanganyika and is also common in the Ituri and Kivu areas of the Belgian Congo.

25c. **Pentas zanzibarica** (Klotzsch) Vatke var. **membranacea** Verdcourt var. nov.; a planta typica foliis majoribus, membranaceis differt.

Herb. Leaves large thin, elliptic, acute at the apex, narrowly cuneate at the base, petiole 2-7 cm long; lamina 11-14.5 cm long

and 5.2-5.8 cm wide, pubescent; lateral nerves 11-12. *Corolla* tube 8.5-10 mm long, lobes 5.5 mm long and 1.5 mm wide.

KENYA : Endebess, 2100 m, Sept. 1943, *Webster* 9644 (EA.).

TANGANYIKA : S. Prov., Rondo Plateau, Lindi District, forest edge, herb with lavender-blue flowers, *Eggeling* 6040 (T.) (EA.).

Observation. — This variety is perhaps an ecovar and it is here that the distinction with *P. lanceolata* subsp. *Quartiniana* var. *oncostipula* tends to break down.

25d. **Pentas zanzibarica** (KLOTZSCH) VATKE var. **pembensis** VERDCOURT var. nov.; a planta typica floribus albis, corollae tubo 10-11 mm longo, foliis membranaceis differt. — Fig. 33, D.

Leaves thin, 9 cm long and 3.3 cm wide. Corolla lobes 4-5 mm long and about 2 mm wide.

PEMBA : Ngezi Forest, flowers white, Aug. 1929, *Vaughan* 608 (T.) (EA.).

Observation. — This variety is close to the last, but has a distinctive appearance. It could easily be confused with *P. micrantha* subsp. *Wyliei* but that has a differently shaped corolla with much smaller lobes. Further material is needed to confirm that this present var. is heterostylous since the type is ♀ e.

25e. **Pentas zanzibarica** (KLOTZSCH) VATKE var. **intermedia** VERDCOURT var. nov.; a planta typica floribus minoribus, semper albis; a *P. pubiflora* SP. MOORE habitu minore, foliis minoribus differt.

Fig. 34. — *Pentas angustifolia* (A. RICH.) VERDCOURT : A, corolla (× 5) (from *Galpin* 749); B, calyx (× 5) (from ditto); *P. lanceolata* DEFLERS subsp. *Quartiniana* VERDCOURT var. *leucaster* VERDCOURT : C, flower (× 5) (from type); *P. lanceolata* subsp. *Quartiniana* var. *nemorosa* VERDCOURT : D, ♂ e corolla (× 2.5) (from *Verdcourt* 357); E, ♀ e corolla (× 2.5) (from ditto); F, base of corolla tube flattened out showing filament bases and folds. The numbers show the numbers of vascular bundles present (from ditto); G, calyces showing variation (× 2.5) (from ditto).

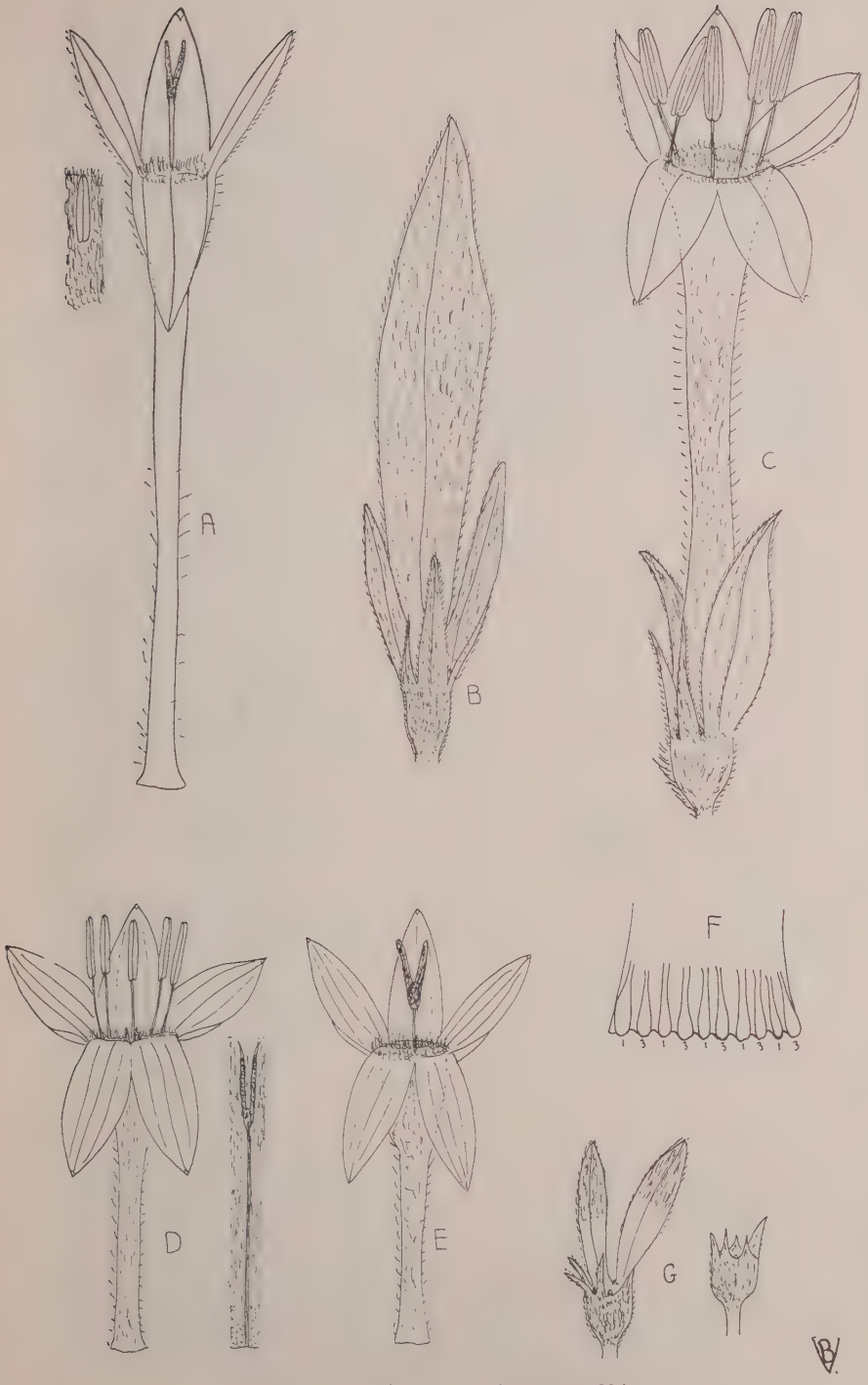

Fig. 34, *see explanation at bottom p. 324.*

P. extensa K. SCHUM. ex KRAUSE, apud MILDBR., Wiss. Ergebn. Deutsch Zentr.-Afr.-Exped. (1906-8), II, p. 311 (1911) nomen, p.p.

Herb to 1.3 m tall. *Leaves* small 2.8-3.5 cm long and 0.8 cm wide, hairy below. *Corolla* tube 5-9 mm (mostly 5) long, white; lobes 4.7 mm long and 2.5 mm wide.

UGANDA : Kachwekano Farm, Kigezi, grassland, perennial herb to 2 ft, flowers white, heterostylous, anthers blue, style mauve, alt. 2330 m, May 1951, *Purseglove* 3615 (EA., K. KAW.); ditto, *Purseglove* 2772 (EA., K.); ditto, April 1941, *Thomas* 3783 (T.) (EA., K., ENT.); ditto, common herb 4 ft tall, alt. 2160 m, July 1945, *Thomas* 4224 (EA., K., ENT.); Kichwamba, Ankole, rocky hillside, flowers white, alt. 1330 m, *Thomas* 4172 (EA., K., ENT.).

KENYA : Kamorin, alt. 2130 m, Dec. 1931, *Mainwaring* 1547 (EA.); Njoro, grassland, alt. 2330 m, Oct. 1930, *Napier* 467 (EA.).

25f. **Pentas zanzibarica** (KLOTZSCH) VATKE var. **latifolia** VERDCOURT var. nov.; a planta typica foliis majoribus 12 cm longis et 5.5 cm latis, inflorescentiis minoribus congestis, petiolis longioribus usque 1-2 cm longis differt.

Herb with internodes 10-16 cm long. *Corolla* tube cylindrical, 6 mm long, lobes 4 mm long and 1.1 mm wide.

TANGANYIKA : Moshi, Coffee Research Station, Lyamungu, herb to 2 ft tall, flowers reddish-pink, stamens blue, alt. 1400 m, Sept. 1941, *Wallace* 983 (T.) (EA.).

25g. **Pentas zanzibarica** (KLOTZSCH) VATKE var. **milangiana** VERDCOURT var. nov.; a planta typica internodiis brevioribus, corollae tubo 5 mm longo differt.

Herb to 1 m tall. *Stems* leafy, velvety yellow hairy or pubescent, internodes 1.5-5 cm long. *Stipules* : setae 7, linear up to 14 mm long. *Leaves* paired or *ternate*, ovate-lanceolate, 7-12 cm long and 1.5-4.5 cm wide, pubescent or velvety; lateral nerves about 9, prominent below, tertiary venation somewhat reticulate. *Inflorescence* dense, branched, about 7.5 cm broad. *Calyx* lobes unequal, largest ligulate 6-8 mm long and 0.5-1 mm wide. *Corolla* tube hairy. Capsule glo-

bose 2-3 mm tall and wide, beak very elevated, 2 mm tall, intravalvular opening small.

Nyasaland : Luchila Plateau, herb to 2-3 ft tall, flowers white, alt. 2000 m, Sept. 1901, *Purves* 90 (K.); Mt Mlange, *Mc Clounie* 25 (K.); ditto, *Adamson* 347 (K.); Luchenya Plateau, Mlange, grassy, edge of rain forest, 60-100 cm tall, flowers purplish white, alt. 1860 m, June 1946, *Brass* 16447 (T.) (K., NY.).

Observation. — This variety is closely related to typical *P. zanzibarica* and also to some forms of *P. purpurea*. It has a decided facies and is readily recognised. The leaves are somewhat like those of *P. Schimperiana*.

26a. **Pentas pubiflora** Sp. Moore, Journ. Linn. Soc. Lond., Bot., XXXVIII, p. 254 (1908) s.s.; Robyns, Flore Sperm. Parc. Nat. Albert, II, p. 331 (1947). — Fig. 35, B & C.

P. pubiflora Sp. Moore var. *longistyla* Sp. Moore, loc. cit. p. 255.

Subshrub. Stems woody, hairy, internodes 3.5-8 cm long. *Stipules* hairy with about 9 filiform setae up to 6 mm long from a short base. *Leaves* ovate to lanceolate, acute at the apex, cuneate basally, petiole up to 1 cm long, lamina 10-13 cm long and 3.5-4.5 cm wide, pubescent; lateral nerves 12-13, prominent below, venation a little reticulate. *Inflorescence* of terminal and axillary components, usually wide and corybose, up to 12 cm across; peduncles about 2 cm long. *Calyx* subtended by a minute linear bractlet, tube 1.5 mm long, lobes unequal, one foliaceous ovate, 3 mm long and 1 mm wide, the rest deltoid or triangular 1-2 mm long. *Flower* ♀ e : corolla white, rarely tinged pale blue or pinkish, glabrescent to very densely hairy, tube infundibuliform, 4-5 mm long, 1 mm wide at middle, dilated above to 1.75 mm, lobes oblong-lanceolate, 2.7 mm long and 1 mm broad; anthers 1.5 mm long included; style exserted 2-3.5 mm, roughened with upwardly directed emergences, stigmas strongly recurved, 1.5 mm long when opened out; throat hairy within, tube glabrous inside at the base. *Flower* ♂ e : similar, corolla tube infundibuliform, 4-5.5 mm long, 1 mm wide at the middle, 2 mm wide at the apex, lobes 1.5-2 mm long; anthers 1.3-1.7 mm long exserted 0.5-1.25 mm; style 2 mm long, stigmas 0.8 mm long, included. *Fruit* ribbed, hairy 4.5 mm long and 3 mm wide, beak 1 mm tall, yellow, papillate.

Uganda : Ruwenzori, herbaceous, white, alt. 2000 m Jan. 1906, *Wollaston* s. n. (T.) (BM.); ditto, herbaceous, purple and white, alt. 2330 m., Jan. 1906 *Wollaston* s. n. (T. of var *longistyla*) (BM.); Muhavura Volcano, lava slopes Kigezi, undershrub to 2 ft, whitish flowers with blue stigmas, alt. 2830 m. Jan., 1947, *Purseglove* 2305 (K. ENT., KAW., EA.); Bukumbiri, S. W. Kigezi, hillside scrub, undershrub to 4 ft, pale blue flowers, alt. 2000 m *Purseglove* 3388 (K., EA., ENT., KAW.).

Kenya : Elgevo Escarpment, upper slopes, woody herb to 4 ft, flowers pink June 1932, *Gardner* 2853 (K., EA.); Mau, Londiani Ravine, common at edge of forest, 2 ft, flowers white Nov. 1905, *Baker* 126 (EA.); Kedowa grassland, erect herb about 2 ft tall, corolla white, stigmas purple, Sept. 1933, *Napier* 5287 (EA.); Gilgil, alt. 2000 m Sept. 1933 *Mainwaring* 5985 (EA.); Nakuru-Subukia, shady situations near water a tall herb, stems becoming woody, rather hairy, flowers greenish-white, alt. 2160 m Nov. 1934, *Albrechtsen* 2772 (EA.); Londiani, shrub to 4 ft with small pink or white flowers, stamens blue alt. 2600 m. Aug. 1937, *Graham* CM. 11515 (EA.); Mt Elgon, alt. 2160 m. June 1920, *Lindblom* s. n. (S.); ditto, 1920, *Granvik* s. n. (S.); sheets have been seen from Kericho and Nandi.

Belgian Congo : Plaine de laves entre les lacs Kivu et Edouard, suffr. 1.5 m haut, corolle rose violacée pâle, tube plus foncé, alt. 1460-2000 m. May 1929, *Humbert* 7872 (BR.); Kibati, route Kibumba, forêt sur plaine de laves, ligneux, fleurs rosâtres, alt. 1900-2000 m. Jan. 1935, *de Witte* 1241 and 1262 (BR.); Vallee de la Ruanoli, fleurs légèrement violacee, alt. 1900 m. May 1914, *Bequaert* 4420 (BR.).

Observations. — 1. — Since dimorphic forms are not deviations from type the varietal name has been sunk. Typical specimens of this species are distinct in their tall growth, very wide lax inflorescences and small usually white and densely hairy flowers but it is closely allied to *P. zanzibarica* and not to *P. herbacea* as stated by its author.

2. — This species is distributed on high ground in W. Kenya, Uganda, and E. Belgian Congo.

26b. **Pentas pubiflora** Sp. Moore subsp. **bamendensis** Verdcourt subsp. nov.; a planta typica habitu, inflorescentiis minoribus, floribus coeruleis differt.

Herb. Stems long, erect or sometimes (?) decumbent, brown, shortly pubescent, later glabrous, more or less hollow, branched; internodes 0.5-11 cm long. *Stipules* with 5-7 linear setae 5-12 mm long. *Leaves* 3-9.5 cm long and 1.2-2.9 cm wide, lateral nerves 8-12, tertiary venation somewhat reticulate below. *Inflorescence* 2-5.5 cm across. *Calyx* lobes small, unequal, one 2-4 mm long and 0.75-1.5 mm wide, rest 1 mm long, glabrescent. *Corolla* tube 4-5 mm long, lobes 3 mm long. *Style* exserted 1-2.5 mm in ♀ e flowers, stigmas thickened 1.25 mm long. *Fruits* globose depressed, 2 mm long and broad, apical valves 0.8 mm tall.

Nigeria : Bamenda, Lakom, on plateau in grassland, flowers heliotrope, alt. 2000 m, April 1931, *Maitland* 1422 (T.) (K.); ditto, on edge of forest, alt. 2000 m, May 1931, *Maitland* 1743 & 1653 (K.); Sonkwala, Obudu, Ogoja, Ikwette, grass plateau, unburnt valley, in tall grass, erect herb, woody below, stem and inflorescence with crimson hairs, calyx white with green tip, corolla tube blue, lobes white, Dec. 1948, *Savory* and *Keay* 25231 (K., FHI.).

Observation. — This subspecies is confined to the Cameroons, Nigeria, and differs in a number of small characters from the type. More details are needed about its habit. It shows a little resemblance to *P. Schimperiana*.

27. **Pentas Purseglovei** Verdcourt sp. nov.: affinis *P. zanzibaricae*, statura minore, foliis ternatis valde distincta.

Herba perennis, erecta ad 23 cm alta. *Caules* simplices, brunnei, nitidi, glabrescentes, ± angulati: internodia 4-5.5 cm longa. *Stipulae* parvae, segmentis 3, usque 4 mm longis, munitae. *Folia* ternatim verticillata, ad 4 cm longa et 1.4 cm lata, ovata, subsessilia, supra pubescentia parce obtecta, subtus ad nervos pilosa; nervi laterales utrinque ± 8. *Flores* in inflorescentiis terminalis ± dense conferti; pedicelli 0-2 mm longi. *Calycis tubus* glabrescentius, lobi inaequales margine ciliati, deltoidei, 3.5 mm longi et 1.5 mm lati vel minuti. *Corollae tubus* 5 mm longus, superne ampliatus, 2.5 mm latus, extra glabrescentius, intus ad apicem dense barbatus, virideo-coerulius:

lobi 5, 2.5-3 mm longi et 1 mm lati. *Stylus* (flos ♀ e) 6.5 mm longus; stigma bifidum, lobis filiformibus 1.5 mm longis. *Antherae* 1.6 mm longae. *Capsula* ignota.

Uganda : Imatong Mts, Langia, mountain grassland, herb 6-9" tall with blueish-green flowers, alt. 3100 m, April 1943, *Purseglove* 1421 (T.) (K., EA.).

Observation. — It is not possible to tell from the type whether or not the stems are single or caespitose. Most probably there are two or three as in *P. zanzibarica*.

28a. **Pentas purpurea** Oliv., Trans. Linn. Soc., XXIX, p. 83 (1873). Verdcourt, Kew Bull., p. 363 (1952).

P. Stolzii K. Schum. & K. Krause, Engl. Bot. Jahrb., XXXIX, p. 522 (1907) excl. *Uhlig* 270.

P. zanzibarica Auct. non (Klotzsch) Vatke.

Herb 14-60 cm tall, mostly 30-45 cm, rootstock woody 12 cm, long and 0.8 cm wide. *Stems* 1-4, pale, hairy or glabrescent, about 4 mm wide at the base, mostly unbranched or with axillary branchlets above; internodes 2-18 cm long. *Stipules* with 1-7 setae, 1-9 mm long from a short base. *Leaves* elliptic-lanceolate to oblong- lanceolate, appearing erect *in sic,* bluntly acute apically, rounded or cuneate basally, subsessile or petiole up to 7 mm long, lamina 4.5-11.5 cm long and 1-3.2 cm wide, pubescent above and on the venation below where the hairs have a bristly appearance; lateral nerves 7-15, prominent and usually pale below, costa wide basally, tertiary venation often quite reticulate. *Inflorescence* a small dense head 1.3-2.5 cm in diam, scarcely enlarging in fruit, sessile or peduncle 2-20 cm long. *Calyx* tube 1-2 mm long, lobes small deltoid, strigosely ciliate, 1.5-4.5 mm long, and 0.5-1 mm. wide. *Flowers* ♀ e : corolla tube 5-7 mm long, hairy at the apex, papillate below, often split longitudinally at the base along the filament sutures, cylindrical and not dilated, lobes 1.5-4 mm long, and 0.5-1 mm wide, linear-oblong, erect, tips inflexed hairy externally, and with long matted throat hairs extending over the lower third of the interior surface; throat hairy with long tangled hairs, and papillate internally from just below the base of the anthers; anthers 1.7 mm long, tips 0.5 mm below the orifice, style roughened, exserted 1.5-2.5 mm, stigma

lobes 1.5 mm long. *Flowers* ♂ e : very similar, anthers 2.2 mm long. exserted 1.5 mm; style included, 3 mm long, stigmas about 1 mm long; in both forms the exserted genitalia are often hidden in the matted white throat hairs. *Fruit* 4 mm long and 3 mm wide, beak papillate, 1.5-2 mm tall, rounded-triangular, enveloped in the persistent calyx lobes.

Tanganyika : Kondeland, Steppe, Aug. 1899, *Stolz* 41* (cotype of *P. Stolzii*) (B.+); Auf Bergweisen an sonnigen Hangen, im oberen Magaka Tal, c. 30 cm hoch, Jan. 1901, *Busse* 937 (B.+, EA.) (lectotype of *P. Stolzii*); Iringa, Msima Stock Farm, perennial herb up to 0.5 m tall, lavender flowers, common on hillsides, *Emson* 355 (EA., K.); *Stolz* 489 p.p. (BOL., UPS., EA., S., see next variety); Njombe, suffruticose, 1-1.5 ft tall, stems 1-2, mostly 1 per rootstock, corolla pale purple-lilac inside, blue-purple outside, in grassland, alt. 2000 m, May 1951, *Eggeling* 6117 (EA., K.); Iringa District, Nyamala, in bracken scrub, suffruticose with 1-2 stems per rootstock, 1-1.5 ft tall, flowers dark ink-blue, May 1951, *Eggeling* 6116 (EA.); Usui, slopes of rocky debris, herb to 12-18" tall, with long fibrous rootstock deeply set in the ground; flowers deep purple, stigmas purple, alt. 1330 m, Nov. 1861, *Speke* and *Grant* 140 (T.) (K.) Mbeya District, Poroto Mts, frequent and widely distributed on N. slopes in grassland and also above forest with *Helichrysum, Philippia,* and *Protea,* a very pretty pubescent-leaved herb to 2-2.5 ft, corolla deep blue outside and pale blue inside, alt. 2000-2430 m, *Clair-Thompson* 771 (K.).

Belgian Congo : Katambi, Baudouinville, *Robyns* 2042 (BR.); Katanga, Mukulia, Lukafu, *Verdick* 597 (BR.); Elizabethville, *Hock* s. n. (BR.); Lualaba, *Homblé* 954 and 947 (BR.); Haut Lomani, Sakadi, edge of R. Lubishi, 40 cm tall, flowers deep violet, alt. 780 m, *Mullenders* 1692 (BR.); Kitimbo, 1908 *Kässner* 2326 (K.); Lualaba, 1910, *Kässner* 3372 (BM.); Katanga, *Vanden Brande* 40 (BR.).

Portugese East Africa : Niassa Province, Maniamba Valley, on red lateritic soil, blue flower, alt. 1330 m, *Hornby* 3535 (K.).

Southern Rhodesia : Pungwe Hills, Inyanga, flowers pale mauve, Nov. 1944, *Hopkins* 13134 (GOV.); ditto, Jan. 1939, *Hopkins* 7167 (GOV.); Manica district, Umtali div., Odzani River

Valley, 1914, *Teague* 126 (BOL.); Skyline, 15 miles S. of Melsetter, perennial herb, occasional in mountain grasslands, flowers dark purple, pale at throat, alt. 2000 m, Jan. 1947, *Fisher* 1255 (GOV.).

Nigeria (Cameroons) : Bamenda, Bum and Lakom, in grassland, flowers mauve, alt. 1300-2000 m, May-June 1931, *Maitland* 1371, 1602, and 1433 (K., FHI.).

Observations. — 1. — This species has been the subject of much confusion notwithstanding that the Speke and Grant type is an excellent specimen with good field notes. It has invariably been identified with *P. zanzibarica* from which species it is quite distinct although the two are closely related. This mistake led K. Schumann into redescribing the plant as *P. Stolzii.*

2. — This plant is probably pyrophytic but the rootstock is not very thick. It is widely distributed from Nigeria to Tanganyika, Portugese East Africa, and Southern Rhodesia but localized in each country.

Key to the varieties of *P. purpurea.*

A. Inflorescence lax or dense, plant 0.6-1.3 m tall. Leaves pubescent below . . . 28b. var. *Buchananii.*

B. Inflorescence a very solid compact globose head, plant 0.2-0.5 m tall. Leaves usually bristly pubescent below only on the characteristically raised venation :

I. Anthers in ♀ e flowers situated near the middle of the corolla tube . . . . . 28c. subsp. *Mechowiana.*

II. Anthers situated near the top of the corolla tube . . 28a. *purpurea* s. s.

28b. **Pentas purpurea** Oliv. var. **Buchananii** Scott Elliot, Journ. Linn. Soc. Lond., Bot., XXXII, p. 436 (1896).

Herb. Stems tall 80-110 cm hairy with crisped yellow hairs, internodes 4-25 cm long. *Stipules* with 3-10 setae, 5-12 mm long. *Leaves* ovate-lanceolate or elliptic, 7-12 cm long and 1.3-4.3 cm wide with adpressed yellowish often bristly hairs above and below, either dense, or sparse and confined to the venation; lateral nerves 7-13, prominent and often pale below, often reticulate. *Inflorescence* variable usually a very dense globular head with two axillary heads from the upper node, 1-4 cm in diameter, or laxer up to 6.5 cm wide. *Calyx* lobes unequal, oblong or deltoid 4.5-8.5 mm long and 0.75-2 mm wide, others as small as 1.5 mm, ciliate, 3-nerved. *Corolla*

tube 4-8 mm long, lobes 1.5-3 mm long and 0.75-1 mm wide, throat hairy, the hairs nearly always extending over about a third to one half of the inside of the corolla lobes so that the limb appears full of hairs. *Style* and stigma exserted 3.5-4 mm in ♀ e flowers.

Tanganyika : Kyimbila, 1915, *Stolz* 489 p.p. (W., & U Duplicates).

Nyasaland : Mt Mlange, alt. 1000 m, Oct. 1939, *Forbes* 112 (EA.); s. l. 1891, *Buchanan* 546 (US, error of numbering ?) 456 (T.) (K.); Plains of Zomba, *Whyte* s. n. (US., NY., K.).

Portugese East Africa : Chimanimani Mountains, 3.5 ft tall, *Munch* 208 (GOV.).

Southern Rhodesia : Penhalonga, erect herb to 2 ft by roadside, flowers purple, Dec. 1945, *Wild* 586 (GOV.); Chirinda, small plant, flowers purple, March 1950, *Hack* 171/50 (GOV.); Stapleford, June 1934, *Gilliland* 281 (GOV.); Mt. Silinda, Dao ' munyanparadza ', April 1944, *Hack* 63 (GOV.); Vumba, Feb. 1942, *Craster* 8715 (GOV. intermediate with *P. zanzibarica)*; ditto, mauve flowers, May 1941, *Hopkins* 8034 (GOV.); Umtali, Vumba forest, in shade, flowers dark purple-blue, March 1932, *Eyles* 7081 B (GOV.) (*P. zanzibarica* intermediate); Umtali, open grass slopes of Christmas Pass Hills, common, flowers deep blue-purple, March 1932, *Eyles* 7081 A (GOV.).

French Equatorial Africa (Oubangui-Chari) : Mbussa, 6° N. 16° 20' E., alt. 8-900 m, April 1914, *Mildbraed* 9080 (K.); Südlich Kongola, nordlich des Lom Flusse, 75 cm tall, alt. 7-750 m, *Mildbraed* 8930 (K.).

Observations. — 1. — This variety is merely a taller form of *P. purpurea* but some forms of it are intermediate with *P. zanzibarica.* Since both species have been derived from the same ancestors, it is not unreasonable to expect certain intermediates.

2. — This variety occurs with the typical variety and also in Nyasaland and French Equatorial Africa.

3. — The two gatherings *Eyles* 7081 A and B which were separated out by the collector indicate the variation which may occur in a small area, one has a lax inflorescence and the other a dense one.

28c. **Pentas purpurea** Oliv., subsp. **Mechowiana** (K. Schum.) Verdcourt comb. nov. — Fig. 35, A.

P. Mechowiana K. Schum., Engl. Bot. Jahrb., XXIII, p. 420 (1897).

Neurocarpaea purpurea Hiern. Cat. Afr. Plants Welw. I, 2, p. 438 (1898) non Oliv., quoad *Welwitsch* 5315 cit.

Herb to 40 cm tall. *Stems* pale, internodes 4.5-13.5 cm long. *Stipules* with three flattened slightly capitellate lobes 2-6 mm long. *Leaves* 3-8 cm long and 1-4.5 cm broad, elliptic. *Inflorescence* globose very compact, 3-3.5 cm in diam. *Flowers* deep indigo, peduncles usually nil. *Calyx* lobes small, the largest 3-3.5 mm long, deltoid. *Corolla* tube 6.5-9 mm long externally hairy or glabrous, papillate, inky-black *in sic.*, about 1.5 mm wide at the apex, lobes small erect 1.8-3 mm long and 1 mm wide, with throat hairs extending over the basal half of the inner surface. *Flowers* ♀ e : styles exserted or just exserted, stigma lobes reaching tips of corolla lobes; centres of anthers just a little above the middle of the tube, tips about 2.5 mm below the throat; throat hairy, tube papillate and splitting very readily along the filament sutures. *Flowers* ♂ e : anthers exserted, style included. *Fruit* with beak 2 mm tall, sepals connivent; fruiting pedicels longer than in typical form.

Northern Rhodesia : Mwinilunga, slope north of Matonchi farm, in *Brachystegia* woodland, perennial herb with woody rootstock, corolla very dark purplish-blue with short white hairs, throat with dense white hairs, Oct. 1937, *Milne Redhead* 2563 (K.).

Southern Rhodesia : Inyanga, flowers purple, alt. 1660 m, June 1919, *Nobbs* per *Eyles* 1453 (GOV.).

Angola : Malange, auf feuchten wiesen, fl. coerul. Nov.-Dec., 1879, *Mechow* 357 (T.) (B. +, W.); Huilla, in wooded meadows about the Lake Ivantala, flowers bluish-purple, Feb. 1850, *Welwitsch* 5315 (COI., BM.).

Observations. — 1. — This subspecies is close to the typical forms in external appearance but the low insertion of the stamens in ♀ e forms is distinctive.

2. — A further variety or possibly even a new species occurs

at Bamenda and has ternate leaves, corolla tube 5-6 mm long, lobes hairy within but the material is too poor for description.

NIGERIA : Cameroons, Bamenda, erect herb to 1 ft, flowers pink, alt. 2000 m, Jan. 1928, *Migeod* 449 (K.).

29. **Pentas arvensis** HIERN in OLIV., Fl. Trop. Afr., III, p. 47 (1877). Fig. 35, E & F.

Neurocarpaea arvensis (HIERN) HIERN, Cat. Afr. Plants Welw. I, (2), p. 438 (1898).

Herb pyrophytic, rootstock very woody, 7.5-10 mm broad, brown, longitudinally striate. *Stems* 4-9, unbranched, herbaceous 30-50 cm tall, pale or purplish in colour, striate, frequently showing traces of burning, often ± hairy bifariously; internodes 3.5-14 cm long. *Stipules* with 3-5 linear or deltoid setae, 3-4 mm long from a short base. *Leaves* paired, held erect *in sic,* elliptic to lanceolate bluntly acute or obtuse at the apex, cuneate basally, petiole nil or up to 2 mm, lamina 2.5-8 cm long and 0.4-2 cm wide, with adpressed crisped hairs above and below; lateral nerves 6-7, venation somewhat reticulate below, costa wide below at base, brownish straw-coloured. *Inflorescence* trichotomous, few to many flowered, laxly globose, each cluster 2.5 cm across. *Flowers* white rarely pinkish. *Calyx* lobes oblong, largest 2.5 mm long and 0.5 mm wide. *Flower* ♀ e : corolla tube 4.5-5 mm long, 1 mm wide at the base, gradually widening to 1.5 mm apically, lobes 1.75-2 mm long and 0.75 mm wide, hairy over basal half inside; style roughened-tomentose, exserted 1 mm, stigmas thickened, lobes 1 mm long; anthers 1.7 mm long, tips 0.25 mm below the throat. *Flower* ♂ e : corolla tube 4 mm long, hairy outside, lobes oblong or elliptic 3 mm long. and 1.5 mm wide; throat densely hairy, anthers 1.75 mm long, exserted 2 mm. *Fruiting inflorescence* 1.5-3 cm broad, peduncle 6.5-10 cm long, secondary peduncles bearing small filamentous bractlets 2 mm long. *Fruits* subglobose 2.5-4 mm long and 2.5-3.5 mm. broad, beak 1.5 mm tall.

ANGLO-EGYPTIAN SUDAN : Auf Aekern bei Derago, Mittuland, corolla alba, faux violacea, Jan. 1870, *Schweinfurth* 2775 (T.) (BM., K., W.).

UGANDA : Mt. Elgon, 1905, *Evan James* s.n. (K.); Acholi, *Dawe* 855 (K.).

KENYA : Kakamega, common in burnt grasslands on heavy loam, herb to 1 ft tall, flower white, ' shikobe' (Kak.), alt. 1700 m, Jan. 1944, *Carroll* H 8 (EA., K.); Nyanza Basin, flowers white, alt. 1670 m, *Battiscombe* 653 (EA., K.).

NIGERIA : Bauchi Plateau, a perennial herb with white or pink flowers,, growing in clumps after fires, 1 ft tall, Jan. 1929, *Lely* 26 (K., FHI.); Vom, alt. 1000-1500 m, *Dent Young* 120 (K.).

FRENCH EQUATORIAL AFRICA (Oubangui-Chari); Buala, 6° 25' N, 15° 30' E., *Mildbraed* 9535 (K.); Kuare, 6° N., 14° 30' E., *Mildbraed* 9219 (K.).

Observation. — A widely distributed but seemingly rare species occurring in the Sudan, Uganda, Kenya, Nigeria, and French Equatorial Africa. It is well-characterised by its small size, caespitose stems, small, usually white flowers and thick woody rootstock; a true pyrophyte. It is allied to *P. purpurea* but that has fewer stems and inky-blue flowers in very dense heads.

30. **Pentas cleistostoma** K. SCHUM., Engl. Bot. Jahrb., XXIII, p. 419, (1897).

P. arvensis HIERN var. *violacea* HIERN ex SCOTT ELLIOT, Journ. Linn. Soc. Lond., Bot., XXXII, p. 436 (1896); GOOD, Journ. of Bot., Suppl. II, p. 2 (1926).

Neurocarpaea arvensis (HIERN) HIERN var. *violacea* (HIERN ex SCOTT ELLIOT) HIERN, Cat. Afr. Plants Welw., I, (2), p. 438 (1898).

Herb with cylindrical woody rootstock 5 cm long and 2.5 cm wide. *Stems* 1-2, thick, up to 7 mm in diam., hollow, leafy, internodes 1-5.8 cm long. *Stipules* with 7 filiform setae 3-9 mm long. *Leaves* upwardly directed *in sic,* elliptic, acute apically, cuneate basally, subsessile, 7.4-11 cm long and 2-4.6 cm wide, shortly pubescent above and below with stiff hairs; lateral nerves 9-10, venation prominent and usually reticulate below, nerves arcuate, particularly near the margins where they anastomose. *Inflorescence* terminal, and axillary, fairly dense, peduncle, calyx and buds hairy. *Calyx* tube hairy 2.5 mm long, lobes 3-5 somewhat unequal, deltoid,

1-2 mm long and 0.5-1 mm wide. *Flowers* ♀ e : corolla tube 3.5 mm long hairy, 1.7 mm wide at the base, expanded to 2.5 mm at the apex, lobes 3 mm long and 1.2 mm wide; style 5 mm long, papillate,

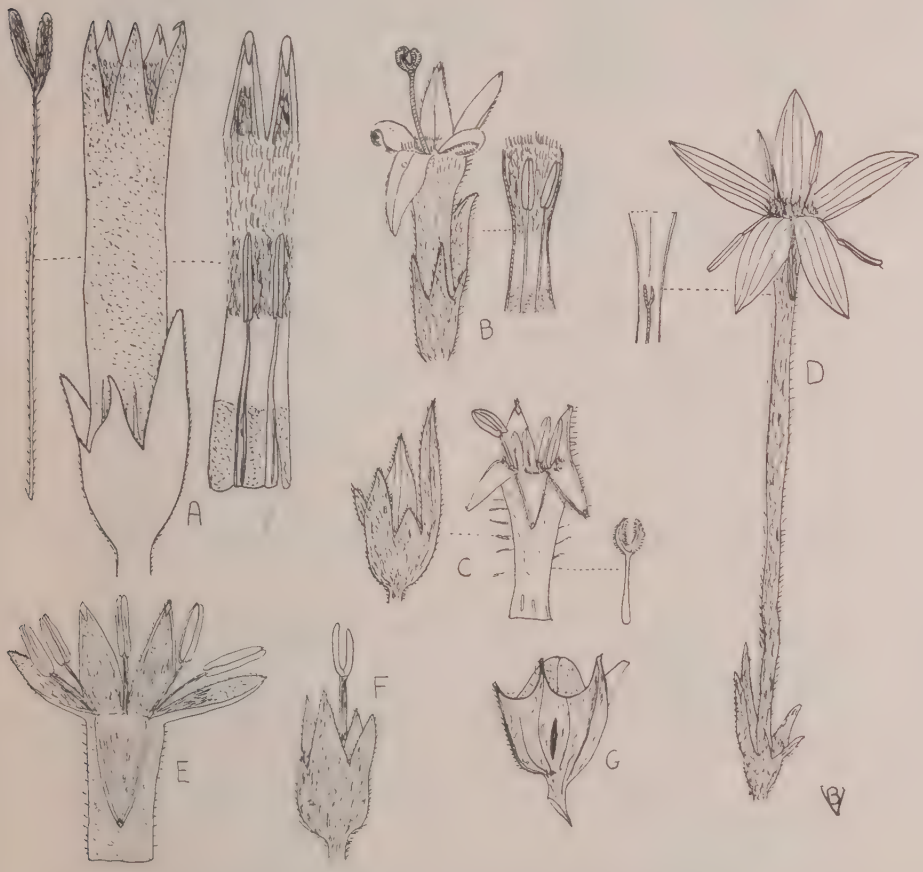

Fig. 35. — *Pentas purpurea* Oliv. var. *Mechowiana* Verdcourt : A, flower (× 5) (from *Mechow* 357); *P. pubiflora* Sp. Moore : B, ♀ e flower (× 5) (from *Purseglove* 2305); C, ♂ e flower (× 5) (from *Purseglove* 3388); *P. lanceolata* (Forsk.) Deflers : D, flower (× 2.5) (from *Greenway* 3899); *P. arvensis* Hiern : E, corolla (× 5) (from *Carroll* H 8); F. calyx (× 5) (from ditto); *P. lanceolata* (Forsk.) Deflers : G, fruit (× 2.5) (from *Greenway* s. n.).

stigma lobes 2 mm long, anthers 1.8 mm long just included; the throat is densely hairy with non-septate hairs about 1 mm long, and they extend over the inner surface of the lobes and fill the

entire limb; actually, however, they are situated only on the basal two thirds of the lobes when carefully examined. *Flower* ♂ e : similar, tube 4 mm long and 2.5 mm wide, lobes ascending; anthers 1.5 mm long, exserted 0.75 mm, filaments almost free from tube; style 2.2 mm long, slightly roughened, stigma lobes 1.5 mm long. *Fruits* in dense heads, ovoid 4 mm long and 3 mm wide, sepals strongly connivent over the beak, so that the fruit is much narrowed at the apex.

Belgian Congo : Haut Lomami, Mwadi Kayembe, herb 1-1.75 m tall, flowers blue, *Mullenders* 1661 (BR.); Tschibonde, savannah, 1 m tall, *Mullenders* 2313 (BR.); Kaniama, tree savannah, 1.5-3 m high, flowers mauve, alt. 900 m, *Mullenders* 201 and 1769 (BR.); Kapanga, *Overlaet* 76 (BR.); Kaha, herb savannah, herb to 50 cm tall, flowers lilac, rare, Feb. 1936, *Luxen* 404 (BR.); Sacomutra, 1.2 m tall, flowers mauve, little opened at the summit, *Quarré* 2255 (BR.). (NB. some of these had been misdetermined as *P. pubiflora*).

Portugese Congo : Cazanga, Moenga, Fort Nije, in herb-grown meadows, 1 m tall, corolla violet-blue internally, Jan. 1918, *Gossweiler* 7436 (BM.).

Angola : Pungo Andongo, *Mechow* 85* (T.) (B.+); ditto, in the more elevated rocky thickets among the gigantic rocks of the fortress, Jan. 1857 (flowering) and Nov. 1856 (fruiting), *Welwitsch* 5309 (lectotype of *Pentas arvensis* var. *violacea*) (BM.); ditto, in woody rocky places near Muta Lucala, March 1857, *Welwitsch* 5311 (BM.); ditto, on elevated slopes within the praesidium, Febr. and April 1857, *Welwitsch* 5310 (neotype) (BM., COI.); Capineta, pents do cemiteris Caconda, Benguella, corolla roxa, Febr. 1907, *Gossweiler* 4252 (COI., BM.).

Observations. — 1. — The synonymy given is undoubtedly correct although the type of *P. cleistostoma* has been destroyed. The descriptions and type localities tally exactly. Moreover a duplicate of *Welwitsch* 5310 (COI.) had been determined by K. Schumann himself.

2. — This species occurs in Angola, Portugese Congo and S. W. Belgian Congo and is related to *P. arvensis* but quite distinct.

3. — At the same time K. Schumann described a variety of this species.

Pentas cleistostoma K. Schum. var. **Poggeana** K. Schum., Engl. Bot. Jahr., XXIII, p. 419 (1897).

Pogge 1110 (T.) (B.+).

Belgian Congo : Mukenge.

This may be only a variety of the present species or a synonym of a different species and since no information is available it has been omitted. The description is insufficient.

31a. **Pentas lanceolata** (Forskål) Deflers, Voyage au Yemen, p. 142 (1889). — Fig. 35, D & G.

Ophiorrhiza lanceolata Forskål, Fl. Aegypt.-Arab., p. 42-3, (1775).

Pentas lanceolata (Forskål) K. Schum. Engl. and Prantl., Nat. Pflfam. IV, (4), p. 29 (1891).

Manettia lanceolata (Forskål) Vahl., Symb., I, p. 12 (1790).

Neurocarpaea lanceolata (Forskål) R. Br., Salt, Abyss., app. IV, p. 64 (1814); Britten, Journ. of Bot. XXXV, p. 129 (1897) excl. syn.

Pentas carnea Auct. non Benth. s. s.

Vignaudia Quartiniana A. Rich. emend. Schweinfurth, var. *grandiflora* Schweinfurth, Beiträge z. Flora Aethiopiens, p. 140 (1867).

Virecta lanceolata (Forskål) Baillon, Hist. Pl., VII, p. 380 (1879).

Pentas Ainsworthii Scott Elliot, Journ. Linn. Soc. Lond., Bot., XXXII, p. 433 (1896).

P. Schweinfurthii Scott Elliot, loc. cit., p. 432 (1896).

P. longiflora Auct. non Oliv.; Cufod., Phyton, I, p. 139 (1939).

Herb or subshrub, erect, woody, 0.5-1.3 m tall. *Stems* striate, hairy, internodes 0.7-20 cm long. *Stipules* with 3-9 setae 2-9 mm long with small colleters from a small base, in some specimens becoming orange and corky. *Leaves* ovate, lanceolate, ovate-lanceolate or elliptic, acute apically, cuneate basally, petioles 1-8 mm long, lamina pubescent or hairy, 3.5-9 cm long and 1.1-3.9 cm wide; lateral nerves 6-14 prominent below by virtue of the hairs being at right angles. *Inflorescence* with terminal and axillary components combined into a single cluster. *Calyx* tube hairy 1-3 mm long and 1.5-2.5 mm wide, lobes unequal the largest 5.5-13 mm long and 0.5-3 mm wide, smallest 1-3 mm long. *Flowers* trimorphic. *Flower* ♀ e : corolla tube 23-39 mm long, hairy or glabrous outside, lobes 7-10 mm long and 1.5-3.5 mm wide; tube dilated apically to 3 mm wide for a distance of 4-8 mm; style roughened exserted 1.5-5.5 mm, stigma lobes 2-5 mm long; anthers 3.5-5 mm long, tips 1.75-4.5 mm below the throat, which is hairy within. *Flower* ☿ i : very similar, tube 20-40 mm long, lobes ovate-oblong 5.5-11 mm long and 2.5-3.3 mm wide; anthers up to 1 mm below the throat or tips exserted 0.25 mm; style glabrous, stigma lobes linear flattened, 3-4 mm long tips 3-5.5 mm below the anther bases. *Flower* ♂ e : very similar, corolla lobes 4.5-8 mm long; anthers exserted 2.5-4 mm; stigma lobes 3.5-6 mm long tips 3.5-4 mm below the throat or rarely exserted 2.5 mm. *Fruit* obtriangular, 4-6 mm tall and wide, beak 1-2 mm tall.

Arabia : Yemen, Hadle Mountains, flowers white and violet, *Forskål* s. n. (T.) (C., BM.); Southern Yemen, Jebel Sabra, near Taiz, 130 miles N. W. of Aden, *Grozovsky* 92 (BM.); Menacha, *Schweinfurth* 1370 (T. of *P. Schweinfurthii*) (BM.); Arabia Petrea, ad Heggias, *Figari* s. n. (K.); Aden, buch 1-3 ft, Sept. 1880, *Hunter* s. n. (K.); Bilad, Haifan, Hodjeni, Gebel Reyan, Bilad Fodhili, Menakhai, *Deflers* 1065, 555, 377 (P., not typical).

Eritrea : North of Acrour, alt. 1600 m, March, 1892, *Schweinfurth* and *Riva* 1111 (BM.).

Abyssinia : Borana, Javello, *Cufodontis* 406 (FI., W.); Harrar, alt. 2000 m, *Nissl* s.n. (W.).

Uganda : Lamuru (?), buschige Hochland, 2 m hoch, Blthn. hell

lila, selten weiss, alt. 3000 m, June 1909, *Scheffler* 258 (BM., K., S., W., BR., verging to subsp. *Quartiniana* var. *leucaster*).

KENYA : Kinangop, small shrub or woody herb 3-4 ft tall, flowers white, *Allen Turner* in *Napier* 358 (EA., K.); Chyulu Hills, edge of forest, large herb to 5 ft tall, showy white flowers with pinkish tube, ' mubatha ' (kikamba), above alt. 1700 m, April 1938, *Bally* 932 (K., EA.); Kikuyu, edge of woodland, up to 3 ft tall flowers white with pale mauve hairs, stigmas mauve, alt. 2000 m, Jan. 1934, *Napier* 3388 (EA.); ditto, flowers white tinged with pink, *Greenway* 8476 (EA.). This species is dominant in some parts of open woodland at Kikuyu and district; it also occurs at Kiu, Nairobi, and in the rift at Longonot.

TANGANYIKA : Cultivated at Amani, from plants collected near Arusha, shrub to 5 ft tall, white flowers, alt. 1000 m, March 1935, *Greenway* 4033 (EA., K.); W. Slopes of Kilimanjaro, Ol Molog Upper field, rare in *Eragrostis chalcantha, Bidens, Gutenbergia* association with *Gladiolus Quartinianus, Indigofera, Crotalaria, Vigna, Chenopodium, Solanum,* and *Justicia* sp. on a dark chocolate loam of volcanic origin on a gentle slope planted with wheat; perennial herb with weak stems, much-branched to 4 ft, flowers white and flesh-pink, alt. 1970 m, June 1944, *Greenway* 6909 (EA., K.); Kilimanjaro, Bismarck Hill to Marangu, fairly common but scattered in the more open parts of the forest belt, perennial herb with weak stems and pale pinkish-mauve flowers, alt. 2300 m, March 1934, *Greenway* 3899 (EA., K., PRE.); Kawinjiro-Masaidorf Bulbul, Winterhochland, 1.5 m hoch, Bl. weiss, alt. 2040-2700 m, July 1926, *Peter* 42916 (B.); Munge at Oldoinyowass, woody herb to 4 ft, flowers white, Sept. 1932, *Burtt* 4347 (SHI.); numerous sheets have been seen from the Kilimanjaro area, many collected by A. Peter, e. g. Moshi, Mkoaranga, Iraku, Meru, Ngalai, Lemunge, and Rombo.

Observations. — 1. — The confusion in nomenclature which has occurred owing to Delile's unfortunate citing of Forskål's name as a synonym of *Mussaenda luteola* DEL. has been mentioned in the introduction and by Verdcourt (16). The following names are therefore nomenclatural synonyms of *P. lanceolata* although they were given to a totally different plant now known as *Pseudomussaenda flava* VERDCOURT.

Mussaenda luteola Del., Cent. Plant. Afr. Cailliaud, p. 65 (1826).

Pseudomussaenda lanceolata (Forsk.) Wernham, Journ. of Bot., LIV, p. 287 (1916).

Vignaudia luteola (Del.) Schweinf., Beit. zur Fl. Aethiop., p. 140 and 282 (1867).

2. — This species as a whole is one of the most variable complexes to be found in the African Rubiaceae. Extremes are so diverse that it seems absurd not to separate them off as distinct species and many botanists would make perhaps ten species, but intermediates are numerous and gradual. The names I have employed are clumsy to cite in full and for ordinary purposes the specific name alone or the subspecific name can be used. The taxa involved are quite as distinct as the microspecies allowed in the British Flora.

3. — Forskål's type has been examined and is similar to *Schweinfurth* 1370 which Scott Elliot, who was quite oblivious of the fact that Forskål had collected a *Pentas* in Arabia, made the type of a new species! Forskål states that his plant was an annual but this is an error and the stems of his type are woody. The calyx lobes of his type are unequal, the longest being 5 mm long. Corolla tube 25-26 mm long, lobes shrivelled and appearing 3 mm long only. No exserted styles were seen but they may have been broken off since the specimen is 175 years old, or possibly the plant was ☿ i. Further study of Arabian material is necessary since although Arabian and East African plants have been considered identical here there are some differences. East African material which can always be separated off as var. *Ainsworthii* if necessary has ovate leaves and a more floriferous inflorescence. Arabian material often has larger flowers in smaller inflorescences which are a little spicate. It is possible that more than one plant occurs in Arabia, since Defler's specimens are somewhat like *P. pauciflora*.

4. — This species (s. s.) occurs in Tanganyika (chiefly Kilimanjaro) Kenya (chiefly Teita and Kikuyu) and upwards to S. Arabia.

Key to the subspecies and varieties of *Pentas lanceolata*.

This key is a guide only to the forms of this complex since naming without the help of authentic specimens is difficult.

A. Corolla predominantly white, more rarely tinged lilac, tube 20-55 mm long :

I. Corolla tube 55 mm long . . . . . 31d. subsp. *longituba*.

II. Corolla tube rarely exceeding 40 mm :

a. Leaves densely white velvety hairy (Meru area of Tanganyika). . . . 31b. *lanceolata* f. *velutina*.

b. Leaves not velvety hairy :

1. Leaves thin, glabrescent, about 12 × 5.7 cm . . . . . 31c. *lanceolata* var. *membranacea*.

2. Leaves thicker, pubescent or hairy about 9 × 3.9 cm . . . . 31a. s. s. *lanceolata*.

B. Corolla usually magenta, pink, lilac, mauve etc., rarely white; tube 12-22 mm long :

I. ♀ e corolla tube very widely funnel-shaped at throat, 5-6 mm wide in most specimens. Leaves often large and thin. Tube about 20 mm long (cultivated) . . . . . 31f. subsp. *cymosa* var. *carnea*.

II. ♀ e tube not so widely dilated :

a. Leaves often very large with petiole 2-5 cm long; corolla tube about 20 mm long, pink. Comoro Islands . . . . 31e. subsp. *cymosa* s. s.

b. Leaves smaller, corolla 12-18 mm long. Main land forms :

1. Leaves lanceolate. Abyssinia, N. E. Congo, and S. W. Tanganyika . . . . . 31g. subsp. *Quartiniana* s. s.

2. Leaves ovate-lanceolate, only rarely lanceolate in some Kenya forms :

α. Flowers more or less congested, fruiting inflorescence also congested :

★ Scrambling herbs or subshrubs, less often erect; corolla lobes rather small blueish-mauve or magenta. Tanganyika :

△ Leaves pubescent or hairy . . . . . 31l. subsp. *Quartiniana* var. *oncostipula*.

△△ Leaves densely velvety with hairs sometimes arranged as in *Dissotis* . . . . . 31m. subsp. *Quartiniana* var. *oncostipula* f. *velutina*.

★★ Erect herbs or subshrubs, corolla lobes larger, showy, white or lilac :

△ Stems velvety below the inflorescence, corolla lilac. Kenya Highlands and Uganda . . . . . 31h. subsp. *Quartiniana* var. *leucaster*.

△△ Stems pubescent, corolla white. Cultivated . . . . 31i. subsp. *Quartiniana* var. *alba*.

β. Fruiting inflorescence with branches lax and spicate :

★ Leaves large with 11-15 lateral nerves; stipular setae 10-14, corolla lobes 3 mm long. Usambaras . . . . . 31k. subsp. *Quartiniana* var. *usambarica*.

★★ Leaves smaller with 6-11 lateral nerves, stipular setae 3-9, corolla lobes 5.5-8.5 mm long. Central Prov. Kenya. . . . 31j. subsp. *Quartiniana* var. *nemorosa*.

31b. **Pentas lanceolata** (Forsk.) Deflers f. **velutina** Verdcourt, f. nov., a planta typica, foliis subtus densissime incano-velutinis, 5.3-8 cm longis et 1.6-2.5 cm latis.

Tanganyika : Iraku, Dungobesch, 0.5 m hoch, Bl. weiss, alt. 1960 m, Aug. 1926, *Peter* 43818 (B.); Mangati, Mdumgara, 0.7 m hoch, weiss, alt. 2005 m, Aug. 1926, *Peter* 43915 (B.); Meru, bei Ngongongare, Bl. weiss, March 1914, *Peter* O. I. 62 (T.) (B).

31c. **Pentas lanceolata** (Forsk.) Deflers var. **membranacea** Verdcourt, var. nov. a planta typica foliis tenuiter herbaceis, majoribus differt.

Stems weak, furrowed. *Leaves* ovate, petiole 11 mm long, lamina 12 × 5.7 cm, hairy above and on lateral nerves below.

Tanganyika : Arusha, Tome River, erect herb with white flowers, river banks and usually near water, alt. 1300 m, Sept. 1943, *Lindeman* 817 (T.) (EA.).

Observation. — Possibly an ecovar of damp places.

31d. **Pentas lanceolata** (Forsk.) Deflers subsp. **longituba** Verdcourt subsp. nov.; a planta typica corollae tubo 5.5 cm longo differt.

Subshrub or woody herb about 1 m tall. *Leaves* elliptic, bluntish at the apex, pubescent, shortly petiolate, up to 5.3 cm long and 1.8 cm broad, venation rather prominent and reticulate below. *Inflorescence* few-flowered. *Calyx* lobes unequal oblong or subspathulate, rather rounded at the apex, the apical half often black in living plants. *Corolla* tube white, pubescent externally, 5.5 cm long; lobes 4-5, white about 6 mm long. *Style* exserted roughened tomentose. *Capsule* oblong up to 8 mm long and 6 mm wide.

Kenya : Rift Valley, Mt Suswa, on rocky ground, Aug. 1952, *Verdcourt* 710 (T.) (EA.).

Observation. — This plant though differing in its capsule is related to species in *Megapentas, Chamaepentadoides,* and *Papillopilosa,* and may be a relict. Typical *P. lanceolata* occurs some 30 miles away but arid ground intervenes.

31e. **Pentas lanceolata** (Forsk.) Deflers subsp. **cymosa** (Klotzsch) Verdcourt comb. nov. s.s.

Pentanisia cymosa Klotzsch in Peters, Reise Mossambique. I, p. 288 (1862).

P. suffruticosa Klotzsch, loc. cit., p. 287 (1862).

Pentas Klotzschii Vatke, Oestr. Bot. Zeitschr. XXV, p. 231 (1875) p.p. nom. illeg.

P. carnea Benth. var. *comorensis* Scott Elliot, Journ. Linn. Soc. Lond., Bot., XXXII, p. 434 (1896).

Herb, woody; internodes 17-20 cm long. *Leaves* thin, elliptic to ovate, petiole 2-4.8 cm long; lamina 11-18 × 4-5.3, glabrescent or finely pubescent; lateral nerves 9-12. *Corolla* pink, tube 13-20 mm long.

Comoro Islands : Mayotte, July 1877, *Paulay* s.n. (W.); s.l. *Humblot* s. n. (W.); Johanna, Strandebener Gebirge, am sonnigen Stellen, suffr. dens. 1 m alt., fl. lila, June-Aug. 1875, *Hildebrandt* 1614 (neotype) (W., BM.); s. l., *Boivin* s. n. 1848 (W.); Ins. Anjoana, *Peters* s. n.* (B.+) (T.); *Humblot* 263 (BM.) is an abnormal plant with corolla only 10 mm long.

Observation. — Not markedly different from the mainland varieties but a decided tendency to larger leaves of thin texture and long petioles. The type has not been seen but only one form appears to occur (?) on the islands.

31f. **Pentas lanceolata** (Forsk.) Deflers subsp. **cymosa** (Klotzsch) Verdcourt var. cult. **carnea** (Benth.) Verdcourt comb. nov.

P. carnea Benth., Bot. Mag., t. 4086 (1844).

P. carnea Benth. var. *hortensis* Scott Elliot, Journ. Linn. Soc. Lond., Bot., XXXII, p. 433 (1896).

Leaves thin, 3-11 × 0.8-4.3 cm, the upper pair quite large, petiole 5-14 mm long. *Corolla* reddish-pink, tube 17-23 mm long, 1 mm wide at base, dilated infundibuliformly apically for a distance of

5-6.5 mm, 4-6 mm wide; lobes oblong-ovate, 7-9 × 3.5-4.5 mm. *Style* exserted 2-3 mm, glabrous, stigma lobes 2.5-3.5 mm long. *Anthers* about 2 mm long situated at the base of the dilation, tips 3-4 mm below the orifice.

Cultivated : Hort Kew 1837 (sheet in type cover, this is unfortunately a throw back and has small flowers and leaves quite unlike the tab. Other sheets are like the tab) (K.). Hort. Bernhardi, pre 1950 (MO.); Hort. Basil, 1846 (Meissner Hb., NY.); Hort. Vindob., 1849 (W., NY.); Haga Orangerie, Hort. Stockholm, 1853 (S.); Botaniska Tradgarden Berlin, 1854, *Anderson* s. n. (S.). Several sheets of ♂ e material with white flowers are better referred perhaps to typical *P. lanceolata*. There original origin is unknown. — Guadeloupe; Basse Terre, *Père Duss* 2553 (MO., NY.); Martinique; Corbeille d'argent, suffr. 1 m tall, biennial or triennial, flowers white or rose, cultivated for making bouquets, abundant Saint-Pierre, Fort de France, Lamentin, Marin, etc., *Père Duss* 1461 (NY.); ditto, s. l., 1864, *Hahn* 604 (W.). Polynesia, Taumoto Isl., Makatea, Sept. 1932, *Wilder* s. n. (NY.).

Observation. — Although the actual origin of the plant widely cultivated about 1840-50 was unknown to Bentham, he guessed that it had come from Tropical Africa. There is no doubt that it was derived from material collected on the Comoros since there is a similarity in facies between the two forms. This is also more feasible since the Comoros were known at that date whereas it is most unlikely that anyone collected living material anywhere on the mainland before 1840. Only ♀ e were grown at first and the name should perhaps be restricted to that. No present day cultivated material appears to be identical with that figured in the Bot. Mag. and most of it is referable to subsp. *quartiniana* or *lanceolata* s. s., or even to *P. Bussei*.

31g. **Pentas lanceolata** (Forsk.) Deflers subsp. **Quartiniana** (A. Rich.) Verdcourt comb. nov. s.s.

Vignaldia Quartiniana A. Rich., Tent. Fl. Abyss., I, p. 357 (1847).

Pentas Quartiniana (A. Rich.) Oliv., Trans. Linn. Soc., XXIX, p. 82, t. 46 (1873).

P. verruculosa Chiov., Atti R. Accad. Ital., Mem. Cl. Sc. Fis. mat. nat., XI, p. 35 (1940).

P. concinna Auct. non K. Schum. Chiov., R. Accad. Ital. C. Stud. Afr. Or. Ital., 4, IV, p. 226 (1939).

P. carnea Auct. non Benth.

P. lanceolata Auct. non (Forsk.) Deflers; Robyns, Flore Spermat. Parc Nat. Albert, II, p. 329 (1947) p.p.

Leaves typically narrow, lanceolate or narrowly elliptic, petiole 0-5 mm long, lamina 4.3-9 (-16) × 0.7-3.2 (-5) cm, pubescent above and below. *Corolla* pink, mauve, or blue 13-21.5 mm long, typically 14-16 mm long, lobes 3-8 × 2-2.6 mm.

Abyssinia : Maiguiga, *Quartin* and *Dillon* 6 (T.) (P., W., S., etc.) Borana, Areru (Meta Gafersa), Feb. 1937, *Cufodontis* 256 (W., FI.); Schabagenne, Aug. 1862, *Schimper* 293 (S., US., K., etc.); Scioa, di Sciassamanna, alt. 1800-2000 m, Nov. 1937, *Senni* 2258 (T. of *P. verruculosa*) (FI.). Findeka, Nov. 1935, *Taschdjian* 243 (W.).

Belgian Congo : Arumbi-Berunga, vers le km 242 de la route Watsa-Kilo, fleur rose, anthère ardoise, *Louis* 4581 (BR.); Kabasha, *Lebrun* 8059, 8151 (K., BR., not typical); Tschambi, *De Witte* 1111 (BR.); Escarpement de Kabasha, *de Witte* (2) 202 (BR.).

Observations. — 1. — This plant often resembles *P. angustifolia* but is not at all related.

2. — A form from S. W. Tanganyika is provisionally referred here but is perhaps a separate variety. It is erect and grows in grassland; the leaves are very similar to those of *P. purpurea*.

Tanganyika : Kasamvu, fairly frequent in the escarpment woodland, erect to 3 ft, flowers dimorphic, pale mauve, anthers blue, alt. 1500 m, March 1950, *Bullock* 2699 (K.); Ufipa, near Mmemya, on grassland slope, the inflorescence just overtopping the grass, fairly common stiffly erect herb from woody stock, flowers dull purple, alt. 2200 m, Feb. 1951, *Bullock* 3665 (K.).

31h. **Pentas lanceolata** (Forsk.) Deflers subsp. **Quartiniana** (A. Rich.) Verdcourt var. **leucaster** (Krause) Verdcourt comb. nov. — Fig. 34, C.

P. leucaster Krause, Wiss. Ergebn. Deutsch. Zentr.-Afr.-Exped., 1907-1908, II, p. 312 (1911).

P. coerulea Chiov., Atti. R. Accad. Ital., Mem. Cl. Sc. Fis. mat. nat., XI, p. 34 (1940).

Herb, erect 0.5-1 m tall. Stems 1-2 from a fusiform rootstock 12 cm long and 1.2 cm wide, stems covered with yellow or brown hairs, dense on peduncle; internodes 2-13 cm long. *Leaves* ovate or ovate-elliptic, subsessile, 3.5-9 × 1.6-4.5 cm, covered with yellowish hairs. *Inflorescence* a dense head 3.5-6 cm wide, peduncle 0-10 cm long. *Corolla* pink or lilac, tube 14-20 mm long, lobes 4-6.5 × 1.25-3.75 mm.

Abyssinia : Galla Sidama, Saio pendii aridi presso Taber, alt. 2000 m, Jan. 1938, *Giordano* 2452 (T. of *P. coerulea*) (FI).

Anglo-Egyptian Sudan : Laboni, frequent tall herb in waste ground near cultivations and paths, flowers pink, ' adua ' (Acholi), Oct. 1948, *Myers* 9715 (K.).

Uganda : N. Kigezi, Ruhinda, grassland, herb 2 ft tall with pink flowers, anthers blue, style and stigma mauve, alt. 1670 m, Jan., 1951, *Purseglove* 3537 (K., EA., ENT., KAW.); Vicinity of Kigoma on the trail from Entebbe to Butiaba, alt. 650-1100 m, Dec. 1909, *Mearns* 2620 (US.). Sheets have also been seen from Mulange and Bwera in the Ruwenzori.

Kenya : Lolderato Escarpment, in grasslands, 2 ft tall with bright red-mauve flowers, alt. 2300 m, Oct. 1929, *Gardner* 2006 (EA.); Kapenguria, in granitic soil, hillside grassland, erect herb with green or purple stems, flowers dull mauve-pink in fairly dense heads, 2300 m alt., May 1932, *Napier* 1902 (EA.); Mt Elgon, grassland, alt. 2300 m, June 1920, *Lindblom* s. n. (S.). Many sheets have been seen from Endebess, Aberdares, Meru, Songhor, Kipkarren, Hoeys Bridge, Lumbwa, and Kisii.

Belgian Congo : Ruanda, Mohasi See, 1907, *Mildbraed* 444 (T.) (B.+, BR., fragment only); Rutshuru, *Lebrun* 8436 (K., BR.); ditto, *Lebrun* 9145 (K., BR.); Sake, *Robyns* 2497 (BR.).

Observation. — Typical forms of this plant are distinctive, the

stems and leaves being woolly or densely hairy, and the inflorescence dense and capitate. It is a plant of grasslands and occurs in Abyssinia, Uganda, Kenya, Sudan and the Belgian Congo; it merges with *P. zanzibarica* var. *rubra*.

31i. **Pentas lanceolata** (Forsk.) Deflers subsp. **Quartiniana** (A. Rich.) Verdcourt var. **alba** Verdcourt var. nov.; ab subsp. *Quartiniana* s.s. caulibus basi valde lignosis 2.5 cm in diam. floribus albis, petiolis usque 2 cm longis, differt.

Tanganyika : Cultivated shrub of unknown origin, up to 2 ft, much branched, white flowers, tube cream, alt. 1000 m, July 1950, *Verdcourt* and *Greenway* 279 (T.) (EA., K.).

31j. **Pentas lanceolata** (Forsk.) Deflers subsp. **Quartiniana** (A. Rich.) Verdcourt var. **nemorosa** (Chiov.) Verdcourt comb. nov. — Fig. 34, D, E, F & G.

P. parvifolia Hiern var. *nemorosa* Chiov., Lav. Ist. Bot. R. Univ. Modena, VI, p. 52 (1935).

Herb usually erect, 30-150 cm tall. *Stems* rather woody, little or much branched at the base. *Leaves* ovate, ovate-lanceolate, or more rarely truly lanceolate, petiole 0-2.5 cm long. *Inflorescence* at first capitate but in fruit the branches become quite spicate and lax. *Corolla* pale pink-magenta or lilac, tube 13-22 mm long, lobes 5.5-8.5 × 2.5-4 mm, rather large and showy. *Fruiting* inflorescence up to 12 cm long.

Kenya : Mt Aberdare, Tusu, Nov. 1910, *Balbo* 678 (lectotype) (Missione Consolata, Turin); Mt Kenya NE., Meru Centrale, April 1924, *Balbo* 544 (ditto); ditto, Jan. 1929, *Balbo* 138 (ditto); Nairobi, Karura Forest, near the Kiambu Road, very local with *Hibiscus, Acalypha, Ageratum, Cyathula, Tagetes,* in the shade of *Piptadenia* woodland by stream, erect or slightly scandent herb when over 3 ft tall, flowers magenta, anthers in ♂ e form deeper blue, styles and stigmas in ♀ e form purple, both forms producing fruit, throat hairs white, alt. 1500 m, Dec. 1950, *Verdcourt* 392 (EA., K., PRE., MO.); ditto, tall herb but diminutive forms occur, predominantly herbaceous with green stems, save at base, 1-2 ft tall, but in shady places some stems are woody and straggle to 6 ft, leaves deep shiny green

above, fairly bullate, flowers pale pink lilac, exserted stigmas deep purple, June 1951, *Verdcourt* 527 (EA., K., PRE., MO.); Thika, in silva, reddish and white, Dec. 1921, *R. & Th. Fries* 15 (S., UPS.); Chania Falls, Thika, common but scattered amongst rocks on a river bank, in shade of *Craibia Elliottii, Heywoodia, Trichocladus, Adina, Ficus* spp., and *Piptadenia Buchananii,* herb to 2 ft, leaves lanceolate, glabrous or pubescent, flowers pale mauve-pink, alt. 2130 m, Feb. 1951, *Greenway* and *Verdcourt* 8494 (EA., K.); Uplands, Limuru, frequent on paths in Lari *Neoboutonia* secondary forest, branched herb to 2 ft tall with woody rootstock, basal stems woody with pale brown bark, branchlets purple with whitish patent hairs, flowers purple, lobes magenta, throat hairs white, exserted anthers blue on white filaments, exserted style white, stigma very dark blue-black or purple, alt. 2400 m, Oct. 1950, *Verdcourt* 357 (EA., K.). Sheets have also been seen from Kikuyu, Ol Joro Orok, Nairobi, Ol Doinyo Subuk, Mbagathi, Nanyuki, Mt. Kenya, Wambugu, and the Aberdares.

Observations. — 1. — This variety has nothing to do with *P. parvifolia*. The type specimens seem identical with the common Nairobi manifestation of *P. lanceolata,* although some of the scraps on the type sheets may be *Parapentas Battiscombei* Verdcourt. A specimen has been chosen as lectotype.

2. — There is considerable variation in corolla tube length and tubes as short as 7.5 mm occur but quite abnormally. This serves to show how plastic this character is and supports the contention that the *P. lanceolata* complex is better not divided into separate species. Detailed investigations show slight secondary differences in the flowers of the two heterostylous forms. In ♂ e forms the stigma is quite smooth and the throat hairs are shorter and do not close the orifice. In ♀ e forms the stigma is roughened and the throat hairs are longer; they are upwardly directed when the buds first open, but later they become more adpressed and open the orifice. The anthers dehisce in the mature bud. Several species of *Meligethes* beetles inhabit the flowers and may assist pollination. Nectar is secreted by papillae at the base of the corolla tube.

3. — It is a very common plant around Nairobi and occurs in the open parts of woodland in rather moist places. It merges with *P. lanceolata* s. s. and intermediates are found; also with var. *leucaster* at the edge of its range. It is similar to var. *oncostipula* but distinct in the field by virtue of its larger flowers.

31k. **Pentas lanceolata** (Forsk.) Deflers subsp. **Quartiniana** (A. Rich.) Verdcourt var. **usambarica** Verdcourt var. nov.; a *P. l. Quartiniana* s.s. internodiis longioribus 4.5-29.5 cm longis; foliis majoribus 13.5 × 5.5-6 cm, nervis lateralibus 11-15, inflorescentiis spicatis differt.

Stipules with 10-14 filamentous setae 5-8 mm long. *Leaves* ovate or elliptic, petioles 3-30 mm long. *Inflorescence* 3.5-4.5 cm. broad in flower, expanding to 11 cm in fruit, the individual branches becoming spicate and lax. *Corolla* tube 10-15 mm long, lobes 3 × 1.2 mm.

Tanganyika : E. Usambara, Nguelo am Ngambo Weg, Aug. 1916, *Zimmermann* 7877 (T.) (EA.); Derema-Ngambo, alt. 850 m, May 1917, *Peter* 20216 (B.); Monga-Sangerawe, Urwald, lila, alt. 950 m, Dec. 1914, *Peter* O. III. II. (B.); Nguelo, Derema, lila, alt. 850 m, May 1918, *Peter* 23471 (B.); Amani-Ngambo, Urwald, Aug. 1915, *Peter* O. III. 155 (B.).

Observation. — This variety forms a link between *P. lanceolata* and *P. zanzibarica*.

31l. **Pentas lanceolata** (Forsk.) Deflers subsp. **Quartiniana** (A. Rich.) Verdcourt var. **oncostipula** (K. Schum.) Verdcourt comb. nov.

P. oncostipula K. Schum., Engl. Bot. Jahrb., XXXIV, p. 329 (1904).

P. carnea Auct. non Benth.

Pentanisia nervosa Klotzsch in Peters, Reise Mossambique, i, p. 287 (1862) ?

Herb or shrubby herb, usually weak and straggling with long decumbent stems up to 3 m long, more rarely erect. *Leaves* ovate, 4.5-11 cm long and 2.2-6 cm wide, bullate; lateral nerves 7-15; petioles 0.3-4.5 cm long. *Flowers* in multiflowered heads, up to 6.5 cm. wide, globose or hemispherical, dimorphic or trimorphic, blue or magenta. *Corolla* tube 10-20 mm long, usually 15 mm, lobes 3-7 × 1-3 mm. *Style* exserted and anthers included or vice versa or both included. *Fruiting* inflorescence a dense head.

Tanganyika : Mkusi, Lushoto, W. Usambaras, straggling herb with green and deep purple-tinged stems, leaves bullate, flowers dimorphic, pale blue-lilac, exserted anthers blue, exserted style palest lilac, throat hairs white, lobes of corolla 3-5, alt. 1500 m, Aug. 1950, *Verdcourt* 320 (EA., K.); ditto, 'mnyapome' (Kishambaa), July 1950, *Williams* 34 (EA., K.); ditto, common with *Rumex maderensis, Helichrysum fruticosum* on roadside margins in *Pteridium aquilinum, Pennisetum clandestinum* grazed grasslands, much-branched perennial herb with stems up to 6 ft long, flowers pale mauve but magenta-pink forms occur, alt. 1500 m, Dec. 1950, *Greenway* 8481 (EA., K.); W. Usambara, Sakare, alt. 1300-1500 m, Sept. 1902, *Engler* 973* (T.) (B.+); Mt. Mlinga, at foot of outcrop with *Memecylon Greenwayi* near the summit, flowers pale magenta, alt. 1200 m, Aug. 1950, *Verdcourt* 314(EA.); Kilimanjaro, S. slope between Umbwe and Weru-Weru Rivers, in the *Myrica-Pteridium* zone, scandent (sic) herb with stems 6-10 ft long, flowers blue-mauve, alt. 1500 m, Sept. 1932, *Greenway* 3229 (EA., K.); Iringa District, Nyamala, Mufindi, scrambling subwoody herb in bracken scrub, flowers lilac-blue, and pink forms seen also, alt. 2230 m, May 1951, *Eggeling* 6113 (EA.). A. Peter collected very many specimens in the Pares (B.). Sheets have been seen from Mashati, Makuyuni, Arusha, Hotulwe, Ukinga, Ubena, Njombe, Mufindi, Shume, Msinga, Wudee, Makania, Tona, Hemwera, Muala, Mbaga, Suji, Lupembe, Kilomeni, Kissangara, Maramba, Lutindi, Old Moshi, Iraku, Mdumgara, Derema, Ngambo, Balangai, Bunduki, Ngwelo and Mahenge. The following sheet has been selected as neotype, W. Usambaras, Urwald bei Balangai-Ngaraga, Blasslila, alt. 1200 m, March 1916, *Peter* 15976 (B.).

Observation. — A scrap of the type of Klotzsch's species is at Kew and if correct (see species 16) is perhaps referable to this form but grave doubt is attached to this fragment. The type of K. Schumann's species has been destroyed but material has been seen from the type locality and shows that he undoubtedly made an error in his original description or had an abnormal specimen before him. He gives the 13 mm as the total length of the corolla and 8 mm as the length of the tube. Small flowers do occur sometimes. The rest of the description agrees well.

31m. **Pentas lanceolata** (Forsk.) Deflers subsp. **Quartiniana** (A. Rich.) Verdcourt var. **oncostipula** (K. Schum.) Verd-

COURT f. **velutina** VERDCOURT f. nov.; a var. *oncostipula* typica foliis supra dense hirsutis, subtus dense velutinis differt.

Leaves bright dark green somewhat resembling a *Dissotis* in the arrangement of the hairs. *Flowers* incompletely trimorphic. *Corolla* tube pale flesh-pink suffused with purplish, 18-19 mm long, lobes livid flesh-pink or magenta on inner face, pale magenta on the outer. *Style* white, stigmas deep indigo. *Anthers* blue: throat hairs white.

TANGANYIKA : World's View, Shume, locally common with *Artemisia afra, Indigofera, Conyza,* and *Impatiens,* on the margin of *Juniperus procera, Olea chrysophylla, Cassipourea, Trichocladus* scrub on a cliff top, branched woody perennial herb, stems weak straggling to 6 ft, flowers in dense heads, bright magenta-pink, Aug. 1950, *Greenway* 8462 (T.) (EA., K.); Pare Mts, Kwasemwenda-Suji Mission, river valley in mountains near water, erect herb to 3 ft, flowers pale purple to mauve, alt. 2160 m, Oct. 1943, *Lindemann* 1075 (EA.).

SPECIES INCERTAE SEDIS.

32. **Pentas Decaryana** HOMOLLE ex VERDCOURT sp. nov., ab omnibus speciebus adhuc descriptis floribus minoribus c. 2 mm longis valde differt.

Herba perennis parva, usque 25 cm alta. *Caules* 3-4 e radice sublignosa 5-10 mm lata orti, pilis albis vel ferrugineis obtecti: internodia 1-3 cm longa. *Stipulae* parvae 3-fimbriatae, 3-4 mm longae. *Folia* anguste elliptico-lanceolata, apice acuta, basi cuneata, sessilia vel petiolata, petiolis usque 12 mm longis; lamina 3-7.3 cm longa et 0.6-1.6 cm lata, ubique breviter pubescentia; nervi laterales utrinsecus 6-8. *Flores* extra glabri, intus villosi, lilacini, in cymis laxis dispositi, parvi dimorphi. *Calycis* lobi 5 inaequales, deltoidei 0.8-1 mm longi et 0.5 mm lati, vel unus in laminam stipitatam (stipes 0.5 mm longus) 3 mm longam et 1 mm latam productus. *Flos macrostylus.* — corollae tubus 2-2.3 mm longus, ad apicem dilatatus 1 mm latus; lobi = 2 mm longi, stylus exsertus, pubescentius, stigma bifidum lobis filiformibus 0.5 mm longis. *Flos microstylus.* — corollae tubus 2 mm longus, lobi 1 mm longi, antherae 1.5 mm longi. *Capsula* rostrata, ovoidea, costata, pallida 2.5 mm longa et 2.5-3.3 mm × 2 mm lata.

Madagascar : Sambirano Mts, corolla lilac-violet, alt. 1000-1100 m, Dec. 1937, *Humbert* 18536 (T.) (P.); Sambirano, près de Beanyona, vers alt. 300 m, *Humbert* 18738 (P.).

Observations. — 1. — Two specimens of this distinctive plant were found in Hb. P. under the MS name. Until further material has been studied it would be unwise to place it in any section of the genus, though it shows affinities to *P. arvensis* and the section *Phyllopentas*.

2. — The inflorescence is an irregularly branched cyme, very lax in fruit, each branch with paired pedicelled fruits at 17 mm intervals, primary pedicels 1.5 mm long, secondary pedicels 3 mm long. Flowers very small dimorphic, violet. There are 5 calyx lobes, either equal, deltoid 0.8-1 mm long and 0.5 mm wide or in one case one lobe is foliaceous consisting of a lamina 3 mm long and 1 mm wide on a stipe 0.5 mm long. More than one species may be involved.

Species Minus Cognitae.

33. **Pentas** sp. nov. (Subgenus *Phyllopentas*).

P. flava Homolle MS.

Herb, internodes 2.5-13 cm long. *Leaves* elliptic-lanceolate, 4.5 cm long and 0.95 cm wide, pubescent above and thickly hairy on the 6 lateral nerves beneath. *Foliaceous* calyx lobes oval 13 mm long and 6 mm wide, stipe 7 mm long. *Corolla* tube about 20 mm long. *Fruit* 5 mm long and 4 mm wide, beak raised 1.5 mm.

Madagascar : s. l., *Decary* 13215 (P.); Vondrozo, bord de route en forêt, fleur blanche, Sept. 1926, *Decary* 5427 (P.).

Observation. — Further material of this plant is required before it can be adequately described. It is closely related to *P. hirtiflora* and to *P. mussaendoides* but the leaves are smaller.

34. **Pentas** sp. nov. (Subgenus *Phyllopentas*).

Subshrub 50-70 cm tall, branched, with ferruginous stems. *Leaves* hairy 10 cm long and 2.8 cm wide. *Foliaceous* sepal white 5 mm

long and 4 mm wide on a stipe 3 mm long. *Corolla* violet, tube 10 mm long. *Fruit* small with well-developed beak.

MADAGASCAR : Massif du Manongavo, March 1909, *Perrier de la Bathie* 3838 (P.); Mt. Tsaratana, *Perrier de la Bathie* 16431 (P.).

Observation. — Further material of this plant which is allied to *P. mussaendoides* is required before it can be described.

LIST OF EXSICCATAE.

The majority of the specimens seen are cited in this list whether or not they are quoted in full in the main text. The parenthetical numbers following the collector's numbers refer to the order of the species in the check list.

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— 239418 (25a)
— s. n. (12a)
Adamson 31 (28b)
— 59 (31a)
— 347 (25g)
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— 2775 (31h)
— 6713 (26a)
Allen 450 (9a)
— 4302 (20)
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— 406 (12a)
— 473 (6a)
Baker 126 (26a)
— 140 (6a)
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— 138 (31j)
— 224 (17a)
— 225 (12a)
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Bally 116 (25b)
— 659 (25b)
— 660 (25b)
— 661 (12a)
— 730 (17b)
— 735 (17c)
— 932 (31a)
— 995 (25b)
— 5503 (31a)
— 6574 (16a)
— 6577 (16a)
— 7310 (24)
— 7414 (6a)
— 7451 (17a)
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Baron 310 (18a)
— 370 (3)
— 1059 (3)
— 1921 (3)
— 3292 (18a)
— 3980 (18a)
— 4718 (3)

Baron 4732 (2)
— 4849 (3)
— 6203 pp (2)
— 6295 (1c)
— 6985 (3)
— 6988 (3)
Basil (Hort) (31f)
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Battiscombe 11 (17a)
— 428 (31a)
— 504 (31j)
— 653 (29)
— 803 (16a)
— 1206 (26a and 6a)
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Beckley 2098 (31g)
Becquet 275 (31h)
— 286 (12a)
— 338 (25b)
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— 874 (14a)
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— 4420 (26a)
— 4432 (6a)
— 4438 (12a)
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— 5187 (31a)
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— 279 (16b)
— 1054 (16b)
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— 2089 (16a)
— 2355 (14c)
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— 2497 (10)
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— 3480 (8)
— 3866 (16a)
— 4120 (31a)
— 4347 (31a)
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— 4088 (6a)
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— 5059 (14a)
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— 6012 (16a)
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— 6039 (17b)
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UN NOUVEAU *BRACHIARIA* DE L'EST DU CONGO BELGE.

PAR

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Lors de l'étude phytosociologique de la Plaine de la Ruzizi (1), l'un de nous a décrit une association à *Brachiaria-Hyparrhenia*, principalement répandue dans la zone des cultures cotonnières

Parmi les caractéristiques de cette association, on trouve un *Brachiaria* fort abondant que nous avons rattaché, à l'époque, à l'espèce *B. Eminii* (Mez) Robyns.

L'importance fourragère de cette graminée, dans sa patrie d'origine, nous a engagé à l'introduire dans nos collections agrostologiques à Yangambi (2).

L'abondant matériel en culture nous a permis de déceler des caractères systématiques le différenciant nettement du *B. Eminii*.

Mr. C. E. Hubbard, de Kew, qui a eu l'obligeance d'examiner nos herbiers, considère également ce *Brachiaria* comme nouveau.

Nous en donnons ci-après la diagnose et la description :

Brachiaria (Sect. *Muticae* Stapf) **ruziziensis** Germain et Evrard sp. nov.: ex affinitate *B. interstipitatae* Stapf et *B. platytaeniae* Stapf, sed inflorescentia tantum 5-7 racemis composita, spiculis foliorumque laminis dense villosis, racemorum quoque marginibus dense ciliatis ab utraque valde differt : *B. Eminii* (Mez) Robyns

(1) R. Germain. — Les Associations végétales de la plaine de la Ruzizi (Congo belge) en relation avec le Milieu. — 1952 — Bruxelles — *Publ. INEAC* — série scient., n° 52.

(2) Nous remercions ici M. Riga, Chef de Plantation de la Compagnie de la Ruzizi, à Nyakagunda, d'avoir bien voulu nous fournir des semences.

quoque proxima, gluma autem inferiore 11-13 nervia, inflorescentia 5-7 racemis composita, foliis racemis et spiculis latioribus longioribusque satis distincta.

Gramen perenne, rhizomate brevissimo, caespitosum, ad 1 m altum. *Culmi* procumbentes deinde geniculatim adscendentes, ad nodos inferiores radicantes, 3-4 mm diam., teretes, internodiis nodum superiorem versus pilis paucis tuberculatis ornatis. *Foliorum* vaginae internodiis longiores, laxae, striatae, pilis tuberculatis dense munitae. Ligulae brevissimae, ad fimbriam dense ciliatam reductae. Laminae oblongo-lanceolatae, complanatae, basi contractae, in apicem acutum attenuatae, 10-25 cm longae, 11-15 mm latae, utraque pagina pilis erectis dense villosae, marginibus chartaceis, insigniter scabris serrulatisque, nervis utrinsecus costam mediam 5-6 subtus paullo prominentibus. *Inflorescentia* erecta, exserta, (3)5-7(9) racemis composita. Rachis communis triquetra, ad angulos glabra, inter eos autem tuberculato-ciliata, apice in appendiculam herbaceam ciliatamque saepe desinenti. *Racemi* suberecti, arcuati, usque 10 cm longi. Rachis herbacea, 3-5 mm lata, basi marginibusque dense ciliata, costa mediana obtusa, undulata ciliisque munita. *Spiculae* biseriatae, turgescentes, 6 mm longae, 2-florae, pedicello 1 mm longo; Gluma inferior spiculam late amplectens, basi callo adnata, obtusa vel lobulatim obtusa, 3 mm longa, 11-13 nervia, nervis ad marginem superiorem anastomosantibus; gluma superior internodio 0,7 mm longo a gluma inferiore separata, ovata, 5 mm longa, parte superiore dense villosa, apice minute acuminata, marginibus hyalinibus, 7-nervia, nervis apice inter se jugantibus, 2/3 spiculae amplectens. *Anthoecium inferum* ♂. Lemma glumae superiori similis sed 5-nervium. Palea hyalina, elliptica, 5 mm longa, bicarinata, carenis alatis, apice retusa. Antherae lineares, 3,5 mm longae, apice mucronulatae. *Anthoecium superum* ♀ vel ☿. Lemma 5 mm longum, plus minusve crustaceum, florem amplectens, longitudinaliter minute punctulatum, apice mucronatum, margine membranaceum. Palea lemmati similis sed apice obtusa, emucronata. Stigmata exserta, dense plumosa nigro-violacea.

District des Lacs Édouard et Kivu : plaine de la Ruzizi, groupement N'Dalishizi, mai 1948, *Maldague* 513; ibidem, *Maldague* 520; Plaine de la Ruzizi, févr. 1950, *Germain* 6078; Plaine de la Ruzizi, Tsimuka, jachères, févr. 1950, *Germain* 6214 (holotype BR., Yangambi).

District du Ruanda-Urundi : Kisuru, Mosso, Urundi : plaine au bas du mont Kigoma, déc. 1951, *Michel et Reed* 849.

Yangambi, en culture, avr. 1953, *Germain* 8229.

Noms vernaculaires : Ndundwa (dial. Bafulero — plaine de la Ruzizi); Itonto (dial. Kirundi — région du Mosso).

Fig. 36. — *Brachiaria ruziziensis* Germain et Evrard : port de la plante.

Observations. — 1. — Graminée fourragère, appétée, produisant tant dans la Cuvette centrale congolaise que dans la plaine de la Ruzizi un matériel herbacé considérable; s'installe bien par semis et se multiplie aisément par voie végétative (boutures et éclats de souche).

2. — D'après M. Devreux (Division de Génétique) le nombre chromosomique de cette espèce est 2n = 18.

3. — Les inflorescences sont parfois parasitées par un champignon. Il s'agit, d'après B. Fassi (Division de Phytopathologie), d'un *Sphacelia*.

4. — Dans la clef des *Brachiaria* du Congo Belge (3), cette espèce s'intègre comme suit :

× Glume inférieure atteignant la moitié ou moins de la longueur de l'épillet...

\+ Rachis des racèmes plus ou moins aplati-rubanné et herbacé (sect. *Muticae*).

* Rachis des racèmes toujours écilié...

* Rachis des racèmes distinctement cilié au bord.

— Glume supérieure séparée de l'inférieure par un entrenœud allongé (0,5 mm). Inflorescence composée de 5-7 racèmes . . . . . *B. ruziziensis.*

— Glume supérieure contiguë à la glume inférieure. Inflorescence composée de 1-5 racèmes . . . . . *B. Eminii.*

5. — Le groupement décrit sous le nom d'association à *Brachiaria Eminii* et *Hyparrhenia dissoluta* devrait plus exactement se dénommer association à *Brachiaria ruziziensis* et *Hyparrhenia dissoluta*.

I. N. E. A. C., Division de Botanique,
Yangambi, octobre 1953.

(3) Robyns W. — Flore Agrostologique du Congo Belge et du Ruanda-Urundi, II, p. 84 (1934).

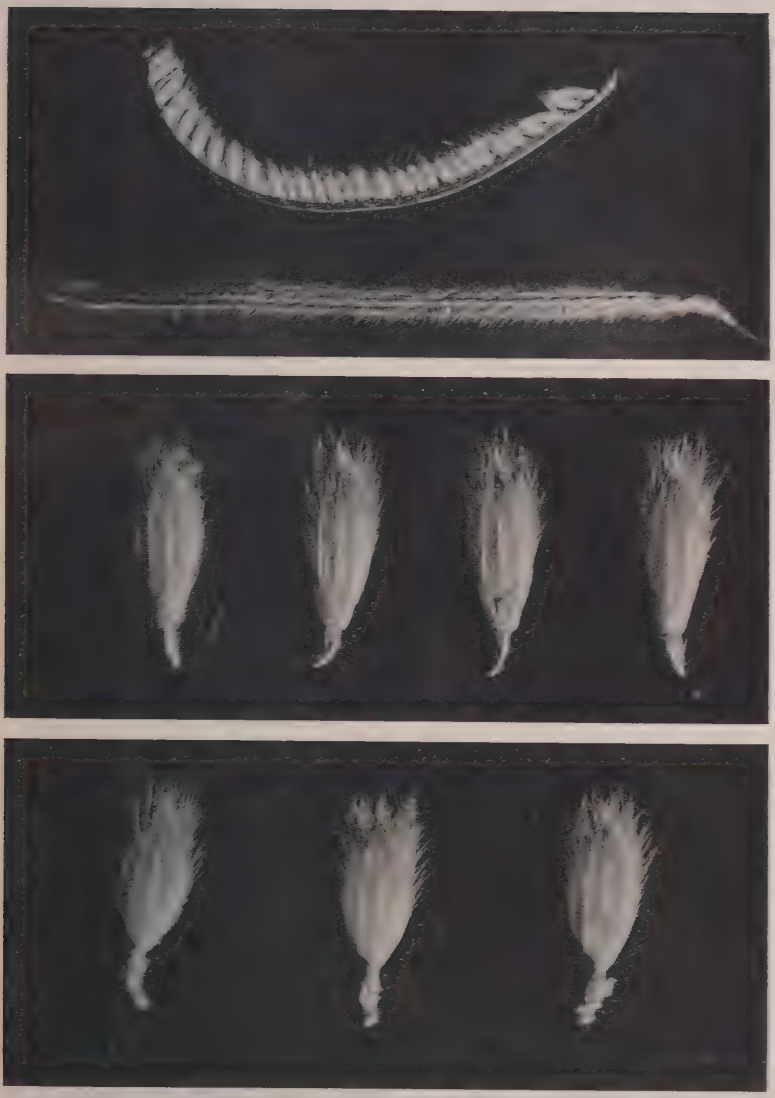

Fig. 37. — *Brachiaria ruziziensis* Germain et Evrard : A, au-dessus, racème complet, en-dessous, rachis du racème densément cilié, à nervure médiane ondulée; B, épillet : pédicelle élargi au sommet, glume inférieure soudée au callus, poils denses dans la partie supérieure (× 4); C, épillet privé de sa glume inférieure (à remarquer l'entrenœud séparant la glume supérieure du callus de la glume inférieure) (× 4).

PAPILIONACEES NOUVELLES DU CONGO BELGE

PAR

L. TOUSSAINT.

La révision des *Sophoreae* faite pour la Flore du Congo Belge et du Ruanda-Urundi nous permet de décrire un *Baphia* et un *Angylocalyx* nouveaux :

Baphia Lebrunii Toussaint sp. nov.; affinis *B. Dewevrei* De Wild., sed ramulis juvenilibus tomentoso-ferrugineis et foliis breviter acuminatis distincta.

Frutex 5-8 m altus; rami glabri. *Folia* stipulis inconspicuis; petiolus 5-6 mm longus, gracilis, glaber; lamina elliptica, basi obtusa, apice longe acuminata, 5-8.5 cm longa et 2-3.5 cm lata, membranacea, utrinque glabra; reticulum venulis tenuissimis utrinque bene conspicuis; costae laterales utrinsecus medianae 8-9. *Flores* 1-2, axillares; alabastrum ovoideum; pedicellus 10-15 mm longus, pubescens; bracteolae ad pedicelli apicem sitae, oppositae, liberae, ovatae, 1.5 mm longae et 1 mm latae; receptaculum in pedicelli axi insertum; calyx 10-12 mm longus, spathaceus, glaber; vexillum suborbiculare, 10-12 mm longum et 12-15 mm latum; alae oblongae, 12-13 mm longae et 6 mm latae, unguiculo filiformi; carinae petala ± alis similia; staminum filamenta 4-10 mm longa; antherae autem 2 mm longae; ovarium 6 mm longum in costis setis fuscis ornatum; stylus glaber; ovula 6. *Legumen* ignotum.

Congo Belge :

District Forestier Central : Entre Mushwere et l'Urega, alt. 1280 m, forêt de transition, arbuste de 5-6 m de haut, fleurs

blanches, juin 1932, *Lebrun* 5579 (holotype BR.); Urega, Maniema, alt. 1200 m, forêt, arbuste ± 8 m de haut, à port pleureur, rameaux grêles, fleurs blanches, juin 1932, *Lebrun* 5639; entre Walikale et Kalehe, alt. 1350 m, forêt de transition, arbuste ± 8 m de haut, cime dense, fleurs blanches, jaunes au centre, mars 1932, *Lebrun* 5315.

Angylocalyx Boutiqueanus Toussaint sp. nov., affinis *A. Pynaertii* De Wild. sed habitu minore et racemis brevioribus distincta.

Frutex 1.5-5 m altus; rami glabri. *Folia* imparipennata; rachis cum petiolo 5.5-13 cm longa; foliola 5-7; petiolulus 6-9 mm longus; lamina oblongo-elliptica, ovato-elliptica vel ovato-cuneata, basi obtusa vel truncata, apice ± longe acuminata, 5.5-15 cm longa et 5.5-10 cm lata; costae laterales utrinsecus medianae 6-8. *Racemi* cauliflori; pedunculus cum rachi 3-5 cm longus, pubescens ad glabrescens; bracteae triangulares, 1 mm longae et latae. *Flores* pedicello 2-3 mm longo; receptaculum cylindricum, 4-6 mm longum; stipes 1.5-2 mm longus; calyx in receptaculi axi insertus, spathaceus, 5-6 mm longus, glaber, lobis crenato-apiculatis; vexilli 12-13 mm longi lamina ovata, unguiculata, basi super unguiculum decurrens, apice rotundata, 9 mm longa et 10-11 mm lata; alae et carinae petala similia, 12-13 mm longa, lamina lanceolata 7-8 mm longa et 3-4 mm lata; staminum filamenta 14 mm longa; antherae autem 2 mm longae; ovarium lineare, 10-15 mm longum, stipite 3-4 mm longo; ovula 10. *Legumen* ad 15 cm longum et 1.5 cm latum, glabrum. *Semina* oblonga, 2 cm longa et 1 cm diam.

Congo Belge :

District du Bas-Katanga : Katundu, abondant localement en sous-bois, petit arbre bas-branchu, à écorce bleu verdâtre, à petites gousses, août 1952, *Gilbert* 13117; id., petit arbre de ± 5 m de haut et 5 cm diam., cauliflore, août 1952, *Gilbert* 13121; id., forêt dense, petit arbre 8 m de haut, fleurs caulinaires, août 1952, *Delvaux* 447.

District Forestier Central : Yapehe (Bambole), alt. ± 470 m, sous-bois forêt primitive hétérogène de terre ferme, arbuste sciaphile de 1.80 m de haut, longs fruits moniliformes, févr. 1939, *Louis* 14127 (holotype BR.); Yambuya, mars 1906, *M. Laurent* s. n.; id., 1906, *Solheid* 90; id., alt. ± 500 m, forêt ripicole le long des rapides

de l'Aruwimi, arbuste de 1.50 m de haut, une inflorescence en grappe près du sol, fleurs rouges, janv. 1939, *Louis* 7714; id., le long de l'Aruwimi, formation rivulaire à *Brachystegia Laurentii* (De Wild.) *Louis*, arbuste de 1.50 m de haut, inflorescences caulinaires de fleurs blanches lavées de violet, jeunes gousses vert clair lavé de violet, févr. 1952, *Toussaint 909;* Yabahondo, route Isangi-Ligasa, sous-bois forêt rivulaire de la rivière Itende, arbuste sciaphile de 1.50 m de haut, fleurs caulinaires à 30 cm du sol, nov. 1948, *Germain* 4529; entre Stanleyville et Ponthierville, km 83, petit arbre de 6-7 m de haut en sous-bois, oct. 1929, *Steyaert* 43; Kindu, *Claessens* 593; Lokolenge, 1931, *Ghesquière* T. 98; Lokandu, forêt, fruits naissant sur le tronc et les branches, nov. 1896, *Dewèvre* 1134.

Nom vernaculaire : Bofele (dial. turumbu, fide Louis).

Jardin botanique de l'État,
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VERONICA ANAGALLIS-AQUATICA L. ET *VERONICA CATENATA* PENNELL EN BELGIQUE

PAR

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Directeur de Laboratoire.

I. — INTRODUCTION.

En Belgique, on a jusqu'ici confondu avec *Veronica Anagallis-aquatica* L. une espèce voisine, *V. catenata* PENNELL. Les deux espèces ont des exigences écologiques assez semblables, mais une distribution différente. Les données actuellement connues sont encore insuffisantes pour préciser le détail; les publier attirera peut-être l'attention des botanistes et leur permettra des définitions plus précises.

II. — POSITION SYSTÉMATIQUE DES ESPÈCES ÉTUDIÉES.

V. Anagallis-aquatica et *V. catenata* appartiennent tous deux à la section *Beccabunga* GRISEB. du genre *Veronica* L., telle que la définit son monographe, G. Schlenker (1). Cette section, principalement représentée dans l'hémisphère nord, groupe des herbes annuelles à vivaces, aquatiques ou amphibies, aux tiges soit rampantes et radicantes aux nœuds, soit à base couchée et radicante et à partie supérieure dressée. Les feuilles sont opposées, sessiles à pétiolées,

(1) SCHLENKER, G., Systematische Untersuchungen über die Sektion *Beccabunga* der Gattung *Veronica*, *Beih. Fedde Repert.*, XC, V-40 p., 2 tab. (1936).

à limbe linéaire-lancéolé à arrondi, entier à denté. Les inflorescences sont des racèmes axillaires opposés ou terminaux, 10-120-flores. Les fleurs ont un calice 4-lobé, ou très rarement 5-lobé, une corolle 4-lobée à tube court, et un style de 1-3,5 mm de long terminé par un stigmate capité. Les capsules sont oblongues-elliptiques à orbiculaires ou un peu plus larges que hautes, aplaties perpendiculairement à la cloison médiane, souvent un peu boursouflées, obtuses à acutiuscules, non à légèrement émarginées au sommet, s'ouvrant finalement en 4 valves détachées de la cloison médiane. Les graines sont au nombre de 15-30 par loge, planes-convexes, jaunâtres, d'environ 1/2 mm de long. On signale dans la section *Beccabunga* des haustoria chalaziens de forme particulière.

Outre *V. Anagallis-aquatica* et *V. catenata,* la section *Beccabunga* renferme encore *V. Beccabunga* L., espèce commune dans presque toute la Belgique et caractérisée par ses feuilles toutes pétiolées et à limbe arrondi au sommet, et huit espèces étrangères à notre flore mais présentant des affinités complexes avec nos espèces indigènes, *V. americana* (Rafin.) Schwein. (Amérique du Nord, Kamtchakta, Japon), *V. anagalloides* Gussone (Europe méridionale, Afrique du Nord, Asie Antérieure), *V. beccabungoides* Bornm. (Perse), *V. lysimachioides* Boiss. (Lydie, Kurdistan), *V. Michauxii* Lamk. (Perse, Afghanistan, Turkestan), *V. oxycarpa* Boiss. (Russie méridionale, Asie mineure et Asie Antérieure), *V. poljensis* Murbeck (Herzégovine, Russie) et *V. scardica* Griseb. (Autriche, Tchécoslovaquie, Hongrie, Yougoslavie, Albanie, Grèce, Bulgarie, Roumanie, Asie Antérieure).

III. — DESCRIPTION ET DISTRIBUTION EN BELGIQUE DES DEUX ESPÈCES.

Voici la description des deux espèces et la citation des spécimens d'herbier.

1. **Veronica Anagallis-aquatica** L., Sp. Plant, ed. 1, p. 12 (1753).

Tige radicante à la base, puis ascendante à dressée, de 15-150 cm de haut, légèrement tétragone, fistuleuse à rarement pleine dans les individus terrestres. *Feuilles* inférieures souvent courtement pétiolées, les médianes et supérieures sessiles-semiamplexicaules; limbe oblong à ovale, rarement obovale, obtus à aigu-acuminé au sommet,

denté à entier, pouvant atteindre jusque 10 cm de long et 4 cm de large. *Racèmes* généralement 20-70-flores, assez denses; rachis glabre à glanduleux-poilu; pédicelles fructifères généralement de 4-6 mm de long, grêles, généralement dressés obliquement et faisant à leur base avec le rachis un angle aigu; bractées linéaires, aiguës, plus courtes à rarement aussi longues que les pédicelles fructifères. *Fleurs* à sépales lancéolés, acuminés; corolle de 4-7 mm de diam., d'un violet clair à lilas clair avec nervures plus foncées; style généralement de 1,5-2 mm de long. *Capsule* ovale à ovale-suborbiculaire, ± obtuse à légèrement acuminée et généralement à peine échancrée au sommet, le plus souvent un peu plus longue que large, de 2,5-4 mm de long, plus courte à très rarement un peu plus longue que les sépales. — *Nombre chromosomique* haploïde : 18.

District Campinien : Olen, fossé marécageux, juill. 1889, *Hennen;* Kuringen, Herckenrode, fossés, *Geraets;* Hasselt, bords des eaux, juill. 1853, *Bamps;* environs de Beverst, bords des irrigations, juin 1890, *M. Halin.*

District Picardo-Brabançon : Leuze, fossés, juin 1894, *Gras;* id., ruisseau, juin 1895, *Gras;* Denderleeuw, juin 1884, *Douret;* id., bords de la Dendre, 1884, *De Wildeman;* Boitsfort, sept. 1861, *M^me^ J.-E. Bommer;* Auderghem, Rouge-Cloitre, août 1887, *Troch;* id., août 1907, *E. Michel;* id., plante fanée, oct. 1953, *Lawalrée* 5721; Jette-Saint-Pierre, fossé, juill. 1864, *L. et V. Coomans;* Bruxelles, Haeren, juin 1909, *Guns;* Woluwe-Saint-Lambert, juill. 1884, *Douret;* La Hulpe, ruisseaux, juill. 1874, *Piré;* Zaventem, fossé humide, août 1941, *E. Michel;* Veltem-Beisem, Beyssem, bords des eaux, 1869, *Bamps;* Heverlee, Parc, fossés, juill. 1867, *Baguet;* Heverlee, bords des ruisseaux, août 1888, *Picquet;* id., fossé, juill. 1922, *Lebrun;* Tirlemont, fossé, sept. 1887, *Busschodts;* Wellen, Het Broek, fossé tourbeux, août 1938, *Michiels;* Wommersom, s'Hertogengracht, fossé, juill.-août 1913, *de T'Serclaes;* Mons, *Nyst.*

District Calcaire Mosan : Landelies, bords de la Sambre, juill. 1863, *Tosquinet;* Florennes, ruisseau d'Yve, sans nom de collecteur; Amay, ruisseau du fond d'Oxhes, 1888, *Ch. Sladden;* Modave, le long de la Bonne, juill. 1872, *Wathelet;* id., bord du Hoyoux, juill. 1886, *G. Evrard;* id., alluvions du Hoyoux, août 1914, *Wathelet;* Comblain-la-Tour, 1875, *Th. Durand;* Tilff, ruisseau près de la chapelle Sainte-Anne, juill. 1895, *Ch. Sladden.*

District Lorrain : Orval, août 1867, *Delogne*.

Observation. — Outre les localités représentées par les spécimens d'herbier cités, je connais cette espèce de la vallée de la Molignée (p. ex. Warnant).

2. **Veronica catenata** Pennell, Rhodora, XXIII, p. 37 (1921).

Tige radicante à la base, puis ascendante à dressée, de 10-80 cm de haut, légèrement tétragone, fistuleuse à rarement ± pleine dans les individus terrestres. *Feuilles* toujours sessiles-semiamplexicaules; limbe étroitement oblong à oblong-lancéolé, ± obtus à aigu-acuminé au sommet, denté à entier, plus étroit en général que chez *V. Anagallis*, pouvant atteindre jusque 9 cm de long et 2 cm de large. *Racèmes* généralement 5-35-flores, un peu lâches; rachis glabre à glanduleux-poilu; pédicelles fructifères en moyenne un peu plus courts que chez *V. Anagallis*, plus épais, étalés à maturité et faisant à leur base avec le rachis un angle droit ou presque, souvent recourbés vers le sommet du racème un peu sous la capsule; bractées lancéolées, subobtuses, plus longues que les pédicelles à l'anthèse, généralement d'environ 1,5 mm de large. *Fleurs* à sépales elliptiques-oblongs, obtus à subaigus; corolle de 3,5-5 mm de diam., rose clair à blanchâtre, à nervures ± rougeâtres; style généralement de 1,3-1,5, rarement 2 mm de long. *Capsule* suborbiculaire, obtuse et le plus souvent légèrement mais nettement échancrée au sommet, en général un peu plus large que longue, de 3-4 mm de large, plus longue à rarement un peu plus courte que les sépales. — *Nombre chromosomique* haploïde : 18.

District Maritime : La Panne, août 1939, *Hanssens;* Coxyde, août 1903, *Massart;* id., août 1910, *Massart* et *Guns;* Oostduinkerke, fossé humide, juin 1928, *W. Robyns;* Ostende, 1872, *O. de Dieudonné;* Blankenberge, sept. 1920, *Lambert;* Knokke, juill. 1928, *De Wildeman*.

District Poldérien : entre Coxyde et Furnes, fossés, août 1912, *Massart;* Uitkerke, endroit marécageux, juill. 1929, *Lambert;* Oudenburg, Plaschendaele, champs, août 1864, *O. de Dieudonné;* Dudzele, août 1880, *Wodon-Rousseau;* Eksaarde, marais, juin 1935, *Mosseray;* Merksem, fossé, juin 1878, *H. Vandenbroeck*.

District Flandrien : Gand, lieux humides hors de la porte Saint-

Pierre, juill. 1851, *Coemans;* id., bords de l'Escaut, juill. 1884, *Magnel;* entre Wilrijk et Aartselaar, Kleine Struysbeek, juin 1880, *H. Vandenbroeck.*

District Campinien : Betekom, bords des eaux, juill. 1861, *Devos;* Rijmenam, bords de la Dyle, assez abondant, juill. 1867, *L. et V. Coomans;* entre Westmeerbeek et Westerlo, prairie humide, juill. 1935, *Mosseray;* Neeroeteren, fossés, juin 1874, *Verheggen.*

District Picardo-Brabançon : Leuze, fossés, bois, sept. 1888, *Henry;* Pecq, juin 1886, *Henry;* Hérinnes-lez-Pecq, marais, juin 1937, *Gras;* Denderleeuw, juin 1911, *Guns* et *Van Langenhove;* environs de Bruxelles, *Piré;* Laken, bassin maritime, juill. 1904, *Guns;* Schaarbeek, *Douret;* Evere, juill. 1884, *Douret;* id., juin 1906, *Gilta;* Berg, fleurs légèrement rosées, juin 1922, *Vermoesen;* Neerlinter, fossé, août 1912, *de T'Serclaes;* Baudour, Douvrain, fossé, juill. 1891, *Brabant;* Nimy, le long du canal du Centre, juin 1911, *M. Laurent.*

District Calcaire Mosan : Yves-Gomezée, petit ruisseau, juill. 1878, *Polchet.*

Observation. — Outre les localités représentées par les spécimens d'herbier cités, je connais cette espèce des environs de Diest et de Gierle (bords de l'Aa).

IV. — COMPARAISON DES AIRES TOTALES ET DES DISTRIBUTIONS EN BELGIQUE DES DEUX ESPÈCES.

Veronica Anagallis-aquatica possède une aire géographique très étendue. Cette aire couvre toute l'Europe continentale et insulaire méridionale et centrale, et s'étend vers le Nord, en localités isolées, jusque 65° L. N. sur le littoral oriental de la mer Baltique; la plante existe aussi dans les îles Shetland et en Islande. Elle se retrouve dans presque toute l'Asie à l'exclusion des contrées septentrionales et des contrées méridionales de basse altitude, la limite connue de son aire vers le Nord étant aux environs de 61° L. N. en Sibérie, la limite vers le Sud traversant les Indes. En Afrique, la plante est connue du Maroc, de l'Algérie, de la Tunisie, de la Libye, de l'Egypte, du Sahara, de l'Abyssinie, de la Somalie, de l'Afrique

intertropicale orientale, de l'Afrique du Sud et du Sud-Ouest, et des îles Canaries. On la connaît enfin de l'Amérique du Nord, jusqu'en Alaska vers le Nord, de l'Argentine et du Chili. Elle a été indiquée en Nouvelle-Zélande mais n'y est probablement qu'introduite.

L'aire de *V. catenata,* bien qu'elle ne soit pas encore parfaitement définie, est plus réduite. En Europe, on connaît cette espèce dans les îles Britanniques, en Suède méridionale où elle n'atteint pas 60° L. N., en Lettonie, Estonie, Danemark, Hollande, Belgique, France, Espagne (Alicante), Grand-Duché de Luxembourg, Allemagne tout entière, Autriche, Tchécoslovaquie, Hongrie, Yougoslavie, Albanie, Russie méridionale et centrale. En dehors d'Europe, on la connaît avec certitude d'Algérie, d'Afrique intertropicale orientale et d'Amérique du Nord. On l'a signalée, mais ces données demandent confirmation, de la Mésopotamie, des Indes et du Japon.

La distribution en Belgique des deux espèces est insuffisamment connue. Les données acquises semblent pourtant montrer que *V. catenata* existe seul dans les districts Maritime, Poldérien et Flandrien, que les deux espèces sont aussi répandues l'une que l'autre dans le district Picardo-Brabançon et peut-être aussi dans le district Campinien, et que *V. Anagallis-aquatica* est de loin plus fréquent dans le district Calcaire Mosan que *V. catenata,* qui n'y est encore connu que d'une seule localité. On a signalé une véronique de ce groupe dans le district Ardennais à Tellin (2), mais aucun spécimen d'herbier de provenance ardennaise n'a été retrouvé. Enfin le seul exemplaire vu du district Lorrain appartient à *V. Anagallis-aquatica.* Il y a donc prédominance ou exclusivité de *V. catenata* en Basse Belgique, et prédominance de *V. Anagallis-aquatica* dans le district Calcaire Mosan, les aires des deux espèces s'interpénétrant dans le district Picardo-Brabançon. Cette différence dans la distribution en Belgique des deux espèces correspond à ce qu'on sait d'elles pour le reste de l'Europe occidentale; *V. catenata* est une plante des contrées de faible altitude, souvent proches de la mer, et n'atteint pas 60° L. N. en Suède, alors que *V. Anagallis-aquatica* remonte dans les Alpes jusque 1500 m d'altitude, et ailleurs dans l'Himalaya jusque 2900 m et au Tibet jusque 4800 m. Pourtant, il n'est pas impossible que *V. catenata* croisse dans plusieurs localités en Haute Belgique et dans le district Lorrain, étant donné sa pré-

(2) Durand, Th., in De Wildeman et Th. Durand, Prodr. Fl. Belge, III, p. 612 (1901).

sence en Allemagne dans la vallée du Rhin, au Grand-Duché de Luxembourg et en Alsace. De même, la limite de l'extension en Basse Belgique de *V. Anagallis-aquatica* ne peut être considérée comme tracée avec exactitude d'après les quelques localités citées ci-dessus. Il reste bien des points à préciser quant à la distribution en Belgique de ces deux *Veronica*.

V. — HYBRIDES.

Les deux espèces étudiées croissant dans des habitats semblables, se trouvent parfois vivre côte-à-côte. Dans ce cas, on peut quelquefois observer des hybrides interspécifiques spontanés. Pareils hybrides ont été observés pour la première fois en Lettonie par Laksevic (3) et puis trouvés au Danemark et au Wurtemberg. Il est vraisemblable qu'on pourra en découvrir aussi en Belgique, dans les localités où les deux espèces cohabitent. Des croisements expérimentaux ont été réalisés par G. Schlenker (4), qui a obtenu facilement des individus hybrides. Mais ces individus n'ont pas formé de capsules, et leurs grains de pollen étaient stériles.

Jardin Botanique de l'État,
novembre 1953.

(3) Laksevic, P., *Veronica Anagallis* L. et *Veronica aquatica* Bernh., *Act. Hort. Bot. Univ. Jurjevensis,* IX, pp. 160-162, tab. II (1909).

(4) Schlenker, G., Experimentelle Untersuchungen in der Sektion *Beccabunga* Griseb. der Gattung *Veronica, Flora,* CXXX, pp. 305-350, 25 fig., tab. II (1936).

CLASSIFICATION DES APOCYNACEES · XXXVII, UNE ESPECE NOUVELLE DU GENRE *HUNTERIA*

PAR

M. PICHON

Le genre *Hunteria* et les genres voisins ont fait tout récemment l'objet d'une révision détaillée (1). Comme il ressort de cette révision, les espèces de *Hunteria* se ressemblent beaucoup par le port, par l'aspect extérieur des fleurs et souvent par les fruits. Les seuls caractères spécifiques sûrs se tirent de la densité des inflorescences, de la hauteur d'insertion des étamines dans le tube de la corolle, de la forme de l'ovaire, de la longueur du style et surtout du nombre d'ovules dans chaque loge. Aussi la détermination des échantillons sans fleurs serait-elle parfois difficile si chaque espèce n'était localisée sur une aire généralement restreinte, les aires de la plupart des espèces étant nettement séparées.

C'est pourquoi l'échantillon fructifère *Michelson* 85, malgré une nervation secondaire inhabituellement dense et un fruit plus gros que la normale, avait été attribué (2) à l'*Hunteria congolana*, seule espèce répandue dans le bassin oriental du Congo où cet échantillon avait été récolté.

L'encre de cette révision était à peine sèche quand parvenait à Paris un autre numéro du même collecteur (*Michelson* 941), en fleurs celui-là, provenant de la même région et représentant une espèce incontestablement nouvelle. La comparaison des deux échan-

(1) Pichon, M., Classification des Apocynacées : XXXVI, Révision des Pléïocarpinées, *Boletim da Sociedade Broteriana*, XXVII, pp. 73-153 (1953).
(2) *Loc. cit.*, p. 103.

tillons *Michelson* montre à l'évidence qu'il s'agit d'une seule et même espèce :

Hunteria densiflora M. Pichon sp. nov. — Fig. 38.

Laminae longe acuminatae, *Hunteriae* more nervatae, nervis secundariis 22-27-jugis. *Inflorescentiae* 30-70-florae, terminales, primo vel secundo ordine contractae, axibus raro manifeste nodoso-inflatis, pedunculo 13-25 mm longo, pedicellis 2,2-3,2 mm longitudine attingentibus. *Sepala* 1,0-1,4 mm longitudine attingentia, squamulis evolutis. *Corolla* sub anthesi 8,65-9,9 mm longa; tubo 6,15-6,5 mm longo, non fisso, 5,7 mm (67-76 % altitudinis) ab imo staminifero; lobis 2,0-3,4 mm (tubi 33-53 %) longis, 1,3-2,1 mm latis. *Antherae* 0,62-0,65 mm longae, 5,3 mm altitudine ab imo tubo sustentae, 0,63-0,9 mm (10-16 % tubi longitudinis) alte inclusae. *Ovarium* 0,9-0,95 mm altum, bicarpellatum, ovulis pro carpello binis, collateralibus; stylus ± 4,0 mm, clavuncula 0,42-0,5 mm, stigma 0,45-0,47 mm longum. *Mericarpia* (unum tantum visum) 28 × 20 mm, laevia. *Semina* non visa.

Congo belge :

District Forestier Central : abords de la route Elila-Kailo (Maniema), au km 22, forêt de type nettement équatorial, févr. 1949, *Michelson* 941 (fl., holotype BR, P); Pangi (Maniema), alt. 500 m, forêt dense intacte, juin 1942, *Michelson* 85 (fr.; BR).

Noms vernaculaires : Muandjura (dial. kisongola, à Elika, fide *Michelson*), Mutura (dial. kisongola, à Pangi, fide *Michelson*).

Observations. — 1. — Arbre moyen (18 m de haut, 30 cm de diamètre), bas, branchu, à branches ascendantes, le tout assez tortueux.

2. — L'espèce prend place tout naturellement à côté de *H. zeylanica* (Retz.) Gardn. ex Thw., dont elle ne diffère guère que par les inflorescences contractées et les anthères plus petites. Elle s'éloigne davantage de *H. congolana* M. Pichon par la nervation en moyenne plus dense, les cymes contractées, la corolle à tube plus long, les anthères plus courtes, l'ovaire moins haut et moins fortement atténué, les ovules moins nombreux, le style et la clavoncule plus longs, enfin les méricarpes plus gros.

3. — La diagnose de *H. congolana* donnée précédemment (3) doit être modifiée sur les deux points suivants : nervures secondaires en 13-23 paires; méricarpes 11-18 × 7,5-14 mm. Le nom vernaculaire « Mutura » doit être supprimé, ainsi que l'échantillon *Michelson* 85.

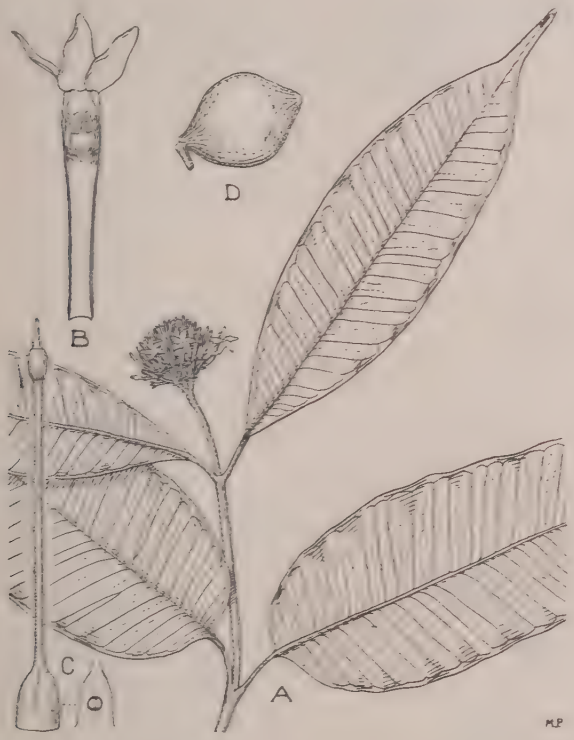

Fig. 38. — *Hunteria densiflora* M. Pichon : A, rameau fleuri (*Michelson* 941) × 2/3; B, corolle en coupe (*id.*) × 5; C, gynécée (*id.*) × 10; D, un méricarpe (*Michelson* 85) × 2/3.

Muséum National d'Histoire Naturelle,
Paris, novembre 1953.

(3) *Loc. cit.*, p. 101.

BULLETIN DU JARDIN BOTANIQUE DE L'ÉTAT BRUXELLES

SUPPLÉMENT

BULLETIN VAN DEN RIJKSPLANTENTUIN BRUSSEL

BIJVOEGSEL

ENUMERATIO PLANTARUM AETHIOPIAE SPERMATOPHYTA

VON

Dr. Georg CUFODONTIS,

Wien.

EINLEITUNG.

Nach meiner Rückkehr von der Biologischen Boranaland-Expedition der Kgl. Italienischen Akademie der Wissenschaften begann ich im Herbst 1937 am Botanischen Institut der Ligurischen Universität in Genova meine Sammlungen zu bearbeiten. Schon nach kurzer Zeit wusste ich, dass dies eine schwierige Aufgabe sein würde, denn es lag zwar eine vorerst noch unübersehbare Zahl von grösseren und kleineren Beiträgen in italienischen, französischen, deutschen und englischen Zeitschriften vor, aber keine noch so bescheidene Uebersicht der Flora Aethiopiens.

Die Reise hatte unvergessliche Eindrücke in mir hinterlassen und mein lebhaftes Interesse geweckt. Einer Anregung meiner lieben Frau folgend, beschloss ich unter diesen Umständen eine Kartei anzulegen, in welcher alle floristischen Angaben über Aethiopien gesammelt werden sollten, um für weitere Studien ein praktisches Instrument zur Verfügung zu haben. Am 10.11.1937 wurde diese langwierige Vorarbeit in Angriff genommen, aber die Wechselfälle meines bewegten Lebens, meine Uebersiedlung nach Wien und dann der zweite Weltkrieg unterbrachen sie so oft und so lang, dass die Kartei im wesentlichen erst 1947 gebrauchsfertig war. Nach Massgabe meiner durch dienstliche Pflichten sehr knapp bemessenen Zeit stellte ich sodann zunächst das Manuskript für die *Bryophyta* und *Pteridophyta* fertig, die Publikation dieser ersten Ergebnisse lang-

Bull. Jard. Bot. État, Bruxelles, XXXIII, Supplément, déc. 1953.
Bull. Rijksplant., Brussel, XXXIII, Bijvoegsel, Dec. 1953.

jähriger Bemühungen stiess jedoch auf ungeahnte Schwierigkeiten. Die österreichischen Zeitschriften nehmen sehr ungern einen Druckbogen überschreitende Arbeiten, geschweige Fortsetzungswerke an und abgesehen davon herrscht bei uns geringes Interesse für tropische Floristik. Durch das Entgegenkommen der Herren Prof. Dr. L. Geitler in Wien und Prof. Dr. F. J. Widder in Graz konnten trotzdem zuerst di *Musci* (1) und bald darauf die *Hepaticae* (2) und *Pteridophyta* (3) erscheinen, so dass ich wenigstens bei der weiteren Suche nach Publikationsmöglichkeiten ein kleines Muster des beabsichtigten Werkes vorlegen konnte. Es lag aber auf der Hand, dass meine ganze Arbeit nur dann einen Sinn hatte, wenn es gelingen würde, die Drucklegung der ganzen « Enumeratio » ein für allemal sicherzustellen. Nach mehreren Fehlschlägen hat nun Herr Prof. Dr. W. Robyns in Bruxelles in wirklich grosszügiger Weise das von ihm redigierte « Bulletin du Jardin Botanique de l'État » für eine fortlaufende Veröffentlichung der « Enumeratio » zur Verfügung gestellt. Als einer der führenden Botaniker der afrikanischen Flora, Verfasser der « Flore des Spermatophytes du Parc National Albert » und Herausgeber der monumentalen « Flore du Congo Belge et du Ruanda-Urundi » weiss Prof. Robyns am besten, dass eine noch so mangelhafte Uebersicht unter bestimmten Umständen sehr nützlich sein kann. Er hat mich durch sein Entgegenkommen ausserordentlich verpflichtet und kann meiner aufrichtigen Dankbarkeit sicher sein.

Als Vorbild dieser « Enumeratio » muss ich drei Werke nennen, deren Wert sich seit ihrem Erscheinen immer wieder gezeigt hat : Th. Durand, Conspectus Florae Africae (Bruxelles, I/2 : 1895-98; V : 1892-94), Th. & H. Durand, Sylloge Florae Congolanae (Bruxelles 1909) und der systematische Teil von A. Engler, Die Pflanzenwelt Ostafrikas und ihrer Nachbargebiete, C (Berlin 1895). Ebensowenig wie diese erhebt die « Enumeratio » einen Anspruch als « Flora » zu gelten; wie diese will sie nur Vorarbeit zu einem Werke sein, dessen Vollendung, selbst unter Mitwirkung zahlreicher Spezialisten, erst nach Jahren zu erwarten ist. Erfreulicherweise hat mein Kollege R. Pichi Sermolli in Florenz nach E. Chio-

(1) Cufodontis G., Vorläufige Aufzählung der Laubmoose Aethiopiens *Oesterr. Bot. Zeitschr. 98* (3) : 217-244. 1951.

(2) Id. Enumeratio Plantarum Aethiopiae, II *(Bryophyta : Hepaticae), Phyton 4* (1-3) : 72-82. 10.7.1952.

(3) Id. Enumeratio Plantarum Aethiopiae, III *(Pteridophyta), Phyton 4* (1-3) : 176-193. 10.7.1952.

venda's Tod (1941) die verdienstvolle Tradition der italienischen Kolonialbotanik übernommen und tatkräftig fortgesetzt. Er plant die Herausgabe einer « Flora Aethiopiae », wofür die grossen Sammlungen der italienischen Reisenden im « Herbarium Coloniale » des Botanischen Instituts in Florenz die glücklichste Voraussetzung bilden. Dieses Werk wird sich ohne Zweifel den in den letzten Jahren begonnenen grossen afrikanischen Floren würdig zur Seite stellen. Es ist mein aufrichtiger Herzenswunsch, dass diese « Enumeratio » den Mitarbeiten an der « Flora Aethiopiae » Zeit und Mühe ersparen möge. Wenn sich diese Hoffnung erfüllt wird meine Arbeit nicht zwecklos gewesen sein.

In den Einleitungen zu den drei ersten Folgen habe ich den für das Werk festgelegten Plan entworfen. Um den Benützern ein unbequemes Nachschlagen zu ersparen und um die äussere Form der im « Bulletin » üblichen « présentation » anzupassen, erschien aber eine nochmalige Besprechung der allgemeinen Gesichtspunkte wünschenswert.

Die nomenklatorisch wichtigen und die in der das Gebiet betreffenden Literatur vorkommenden Synonyme sind mit den, wenn nötig, überprüften Publikationsjahren chronologisch aufgezählt. Neue Kombinationen und neue Namen wurden nur dann geschaffen, wenn es unvermeidlich war. Zitate, welche offensichtlich auf falscher Anwendung vorhandener Namen, also in Wirklichkeit auf Fehlbestimmungen beruhen, müssen, wie ich vor mehreren Jahren dargelegt habe, im Interesse der Genauigkeit als sogenannte « Pseudosynonyma » von den echten Synonymen streng unterschieden werden. Sie wurden im « Conspectus Florae Angolensis » (von Exell), sowie in der « Flora of Tropical East Africa » (vom Kew-Staff) durch eckige Einklammerung gekennzeichnet. In dieser « Enumeratio » habe ich in solchen Fällen die « Recommendation » 60 F des I. C. B. N. (Utrecht 1952) befolgt und damit auch einen Wunsch des Herrn Herausgebers erfüllt. Manche Namen wurden als « nomen seminudum » bezeichnet. Dieser, dem I. C. B. N. fremde Ausdruck will die Tatsache ausdrücken, dass der betreffende Name mit einer allzu kurzen und die Sippe ganz unzureichend charakterisierenden Beschreibung veröffentlicht wurde. In den meisten Fällen müssen, wie ich glaube, solche « nomina seminuda » wie echte « nomina nuda » bewertet und können nicht als gültig publiziert angesehen werden.

Der Angabe des Typus oder der Syntypi folgt die Verbreitung, welche in *a)* jene in Aethiopien, *b)* im tropischen Afrika und *c)* aus-

serhalb des tropischen Afrika gegliedert ist. Ich bediente mich dafür fester Abkürzungen, deren Erklärung im weiter unten folgenden Verzeichnis zu finden ist. Das Hauptgewicht liegt dabei auf den Angaben für Aethiopien und das tropische Afrika, während jene unter *c)* weniger Anspruch auf Vollständigkeit erheben und nur den allgemeinen chorologischen Charakter der Sippe umreissen sollen.

Die Abkürzungen beziehen sich nicht immer auf politische Gebiete sondern manchmal auch auf gewisse Gegenden, welche als Sammelgebiete berühmter Reisenden bekannt geworden sind.

Das Territorium dieser « Enumeratio » umfasst ausser dem eigentlichen Kaiserreich Aethiopien, auch die « Côte Française des Somalis » und das britische « Somaliland Protectorate », sowie den derzeit unter italienischer Mandatsverwaltung stehenden Teil von Somalien. Die ehemals italienische « Colonia Eritrea » wurde bekanntlich vor kurzem dem äthiopischen Kaiserreich angegliedert. Wenn von SF. und SB. abgesehen wird, bedürfen die übrigen Teilgebiete einer Rechtfertigung, denn sie entsprechen im Allgemeinen den von Italien geschaffenen gleichnamigen Verwaltungsregionen der « A. O. I. ». Es ist mir nicht gelungen, die gegenwärtig geltende administrative Einteilung des Kaiserreiches in Erfahrung zu bringen und die Verwendung der zahlreichen traditionellen, in der Umgrenzung aber schwankenden Landschaftsnamen, wie Tigre, Beghemeder, Godjam, Ogaden, u. s. f. hätte nur Verwirrung gestiftet. Nach reiflicher Ueberlegung und natürlich ohne jeden politischen Hintergedanken habe ich mich aus reinen Gründen der Zweckmässigkeit für die Beibehaltung der erwähnten Gliederung entschlossen.

Die zahlreichen « nomina indigena » wurden stets in der Schreibweise der Gewährsmänner geschrieben und die Mundart, bzw. die Gegend, aus welcher sie stammen in Klammern hinzugefügt. Ich behalte mir nach Abschluss des Werkes ein allgemeines Verzeichnis dieser Namen vor, worin auch, zur Feststellung der Phonetik, die Sprache des jeweiligen Autors angegeben werden soll. In den « observationes » wurden fallweise erforderliche Anmerkungen über Nutzen, Nomenklatur, Taxonomie u.s.f. aufgenommen.

Die Familien und Gattungen sind nach dem System von A. Engler angeordnet, welches auch in der « Flore du Congo Belge et du Ruanda-Urundi » und in der letzten Ausgabe der « Internationalen Nomenklatur-Regeln » angenommen wurde. Eine den heute herrschenden Anschauungen entsprechende Abänderung durch Umstel-

lung der *Monocotyledones* an den Schluss des Systems hielt ich für geboten. Die Gattungen wurden mit der fortlaufenden Nummer von Dalla-Torre & Harms (Genera Siphonogamarum, 1900-1907) versehen, die in diesem Werk noch fehlenden Gattungen nach der jeweils nächstverwandten eingeschoben und mit derselben, durch Sternchen ergänzten Nummer bezeichnet.

Das Literaturverzeichnis umfasst nur Publikationen, die sich ausschliesslich oder vorwiegend auf das Gesamtgebiet von Aethiopien beziehen und im wesentlichen floristischen Charakter haben, auch wenn sich einzelne von ihnen nur mit einer Familie oder Gattung beschäftigen. Auf diesem Wege wurde in erster Linie die Sippenverbreitung innerhalb Aethiopiens ermittelt. Die sonstige Verbreitung wurde allen wichtigen Floren, vor allem Afrikas, entnommen und die modernsten von ihnen besonders berücksichtigt. Ihre Aufzählung erschien mir überflüssig. Ich brauche wohl nicht hervorzuheben, dass stets auch « Die natürlichen Pflanzenfamilien » von Engler & Prantl in beiden Auflagen und « Das Pflanzenreich » gewissenhaft zu Rate gezogen wurden. Monographien und sonstige Arbeiten rein systematischen Inhalts konnten hier listenmässig nicht erfasst werden, da sie einen übermässig breiten Raum beansprucht hätten und auch weil ich naturgemäss immer erst während der Bearbeitung der einzelnen Familien derartige Publikationen zu überblicken vermag. Wo es zum Verständnis erforderlich war, habe ich in den « observationes » zweckdienliche literarische Hinweise gemacht.

Damit glaube ich alles gesagt zu haben, was den Leser über die Entstehung, den Inhalt und den Gesamtplan, sowie für den praktischen Gebrauch dieser « Enumeratio » interessieren kann. Ich weiss, dass sie nichts weniger als fehlerfrei ist und mancher Ergänzung bedarf. Deshalb bitte ich meine Fachkollegen, sie auch bei Aufdeckung von Mängeln mit Nachsicht zu beurteilen und mir zu glauben, dass ich mich stets nach bestem Wissen und Gewissen bemüht habe unserer Wissenschaft zu dienen.

Wien, im Botanischen Institut der Universität,
20. November 1952.

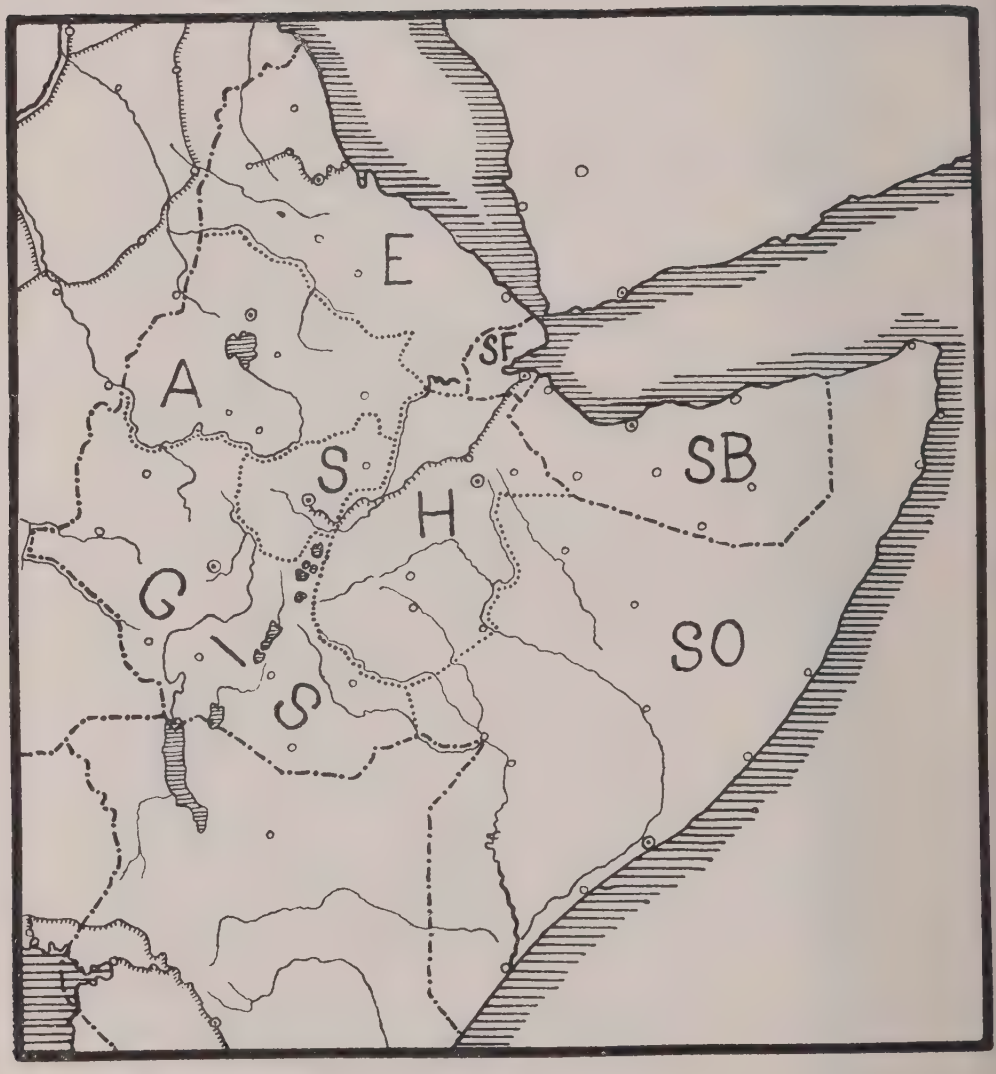

Fig. 1. — Karte Aethiopiens.

ABKÜRZUNGEN.

Aethiopien.

A. : Amhara, *E.* : Erythraea, *GS.* : Galla-Sidamo, *H.* : Harar, *S.* : Shoa, *SB.* : Somalia Britannica, *SF.* : Somalia Gallica, *SO.* : Somalia (vergleiche die Karte Fig. 1).

Afrika.

AEF. : Afrique Équatoriale Française, *Aeg.* : Aegyptus, *Alg.* : Algeria, *An.* : Angola, *Ann.* : Ins. Annobon, *Be.* : Betchuana, *Bo.* : Bongo, *Ca.* : Camerunia, *Ch.* : Chad, *Con.* : Congo Belgica, *Cor.* : Cordofan, *Dah.* : Dahomey, *Dam.* : Damaraland, *Dar.* : Darfur, *Ds.* : Djur, *FP.* : Ins. Fernando Po, *Gab.* : Gabon, *Gam.* : Gambia, *GC.* : Gold Coast, *Gh.* : Ghazal, *Gui.* : Guinea, *GuiF.* : Guinée Française, *GuiP.* : Guinea Portugeza, *IC.* : Côte d'Ivoire (Ivory Coast), *Ke.* : Kenya, *Li.* : Liberia, *Lib.* : Libya, *Mar.* : Marocco, *MC.* : Moyen Congo (in AEF.), *Mo.* : Mozambique, *Mu.* : Rio Muni, *Ni.* : Nigeria, *NiF.* : Niger Français, *NN.* : Niam-Niam, *Nu.* : Nubia, *Ny.* : Nyasaland, *OuC.* : Oubangui-Chari (in AEF.), *Pri.* : Ins. Principe, *Rh.* : Rhodesia, *RO.* : Rio de Oro, *RU.* : Ruanda-Urundi, *Sah.* : Sahara, *Senl.* : Senegal, *Senr.* : Sennaar, *SuA.* : Sudan Anglo-Aegyptiacus, *SuF.* : Sudan Français, *SL.* : Sierra Leone, *Ta.* : Tanganyika, *Tho.* : Ins. Sao Thomé, *To.* : Togo, *Tr.* : Transvaal, *Tu.* : Tunesia, *Ug.* : Uganda, *Za.* : Zanzibar.

Ausserafrikanische Gebiete.

Ac. : Ins. Tristan d'Acunha, *Afg.* : Afghanistan, *Ana.* : Anatolia, *Ar.* : Arabia, *Arm.* : Armenia, *Asc.* : Ins. Ascension, *Az.* : Ins. Azores, *Bel.* : Belutchistan, *Cauc.* : Caucasus, *Can.* : Ins. Canares, *Cey.* : Ceylon, *Chi.* : China, *Coch.* : Cochinchina, *Com.* : Ins. Comores, *CV.* : Ins. Cap Verde, *Fo.* : Ins. Formosa, *Hel.* : Ins. St. Helena, *Him.* : Himalaya, *IN.* : Indonesia, *Ind.* : India orientalis, *Jap.* : Japonia, *Kurd.* : Kurdistania, *Mad.* : Ins. Madagascar, *Mak.* : Ins. Makaronesicae, *Mal.* : Malacca et India posterior, *Mas.* : Ins. Mascarenes, *Mau.* : Ins. Mauritius, *Mda.* : Ins. Madeira, *Med.* : Mediterrania, *Mel.* : Ins. Melanesiae, *Mes.* : Mesopotamia (Iraq), *Mik.* : Ins. Mikronesiae, *NG.* : Nova Guinea, *NS.* : Nova Seelandia, *Pal.* : Palaestina, *Per.* : Persia, *Phil.* : Ins. Philippinae, *Pol.* : Ins. Polynesiae, *Réu.* : Ins. Réunion (vel Bourbon), *Sey.* : Ins. Seychelles, *Sib.* : Sibiria, *Sin.* Sinai, *Soc.* : Ins. Socotra, *Son.* : Songoria, *Syr.* : Syria, *Tas.* : Ins. Tasmania.

Erdteile.

Af. : Africa, *Am.* : America, *As.* : Asia, *Au.* : Australia, *Eu.* : Europa.

Sonstige Abkürzungen (in Verbindung mit den oben aufgezählten).

C- : centralis, *N-* : septentrionalis, *O-* : orientalis, *S-* : meridionalis, *W-* : occidentalis.

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— (1908) : *Capparidacearum* finis, eodem loco, Annu. R. Ist. Bot. Roma *8* (3) : 265-267.

Rendle A. B. (1896) : Dr. Donaldson Smith's *Acanthaceae*, Journ. of Bot. *34* : 395-398, 409-414.

— (1897) : New and interesting *Acanthaceae* collected by Lort-Phillips in Somaliland, Journ. of Bot. *35* : 375-380.

— (1898) : New plants from Somaliland, Journ. of Bot. *36* : 28-31.

Richard A. (1840) : Plantes nouvelles d'Abyssinie, etc. (decas 1-2) Ann. Sci. Nat. Paris *14* : 257-276 (plantae a Quartin-Dillon lectae).

— (1847-1851) : Tentamen Florae Abyssinicae, I.1847; II.1851 (circa 1700 species lectae a Quartin-Dillon et Petit).

Sacleux C. (1908-1909) : Sur l'herbier de M.M. de Rothschild (Collections faites en 1904 dans l'Éthiopie méridionale), Bull. Mus. Hist. Nat. Paris *14* : 239-244, 292-295.1908; *15* : 22-26.1909.

Scatizzi A. (1937) : Ricerche sulla morfologia delle cariossidi di *Sorghum* eritrei, Relaz. e Comunic. III. Congr. Studi Colon. Firenze : 53-61.

Schultz-Bip. C. H. (1839) : Diagnoses *Cichoracearum* novarum in Arabia et Abyssinia a cl. Rueppell lectarum, Flora *22* : 19-21.

— (1842) : Ueber die *Compositen* von E. Rueppell und W. Schimper's abyssinischer und Kotschy's nubischer Reise, Flora *25* : 417-424, 433-442.

— (1845) : *Cichoraceae* a. 1831-32 a cl. Rueppell in Arabia et Abyssinia lectae (e Herb. Societ. Senckenbergianae), Mus. Senckenb. *3* : 45-60.

Schumann K. (1898) : 4 familiae, in Harar et in Somalia a Robecchi-Bricchetti et Riva lectae (Contribuzioni, etc. XV), Annu. R. Ist. Bot. Roma *7* : 32-43.

Schweinfurth G. (1862) : Plantae quaedam niloticae, etc., Berlin.

— (1867) : Beitrag zur Flora Aethiopiens, Berlin.

— (1868) : Novae species aethiopicae, Verh. zool.-bot. Ges. Wien *18* : 651-688 (36 species).

— (1868) : Reliquiae Kotschyanae, Berlin.

— (1892) : Aufzählung der von Hoehnel gesammelten Pflanzen, in L. v. Hoehnel, Zum Rudolph-See und Stephanie-See (ex Aethiopia 6 species tantum).

— (1893) : Abyssinische Pflanzennamen (Abhandl. Kgl. Preuss. Akad. Wiss.), Berlin.

— (1894-1899) : Sammlung arabisch-äthiopischer Pflanzen (aus den Jahren 1881-1892), Bull. Herb. Boiss. *2* : App. II.1894; *4* : App. II.1896; *7* : App. II.1899.

Schweinfurth G. & Ascherson P. (1867) : Aufzählung sämtlicher zur Zeit bekannten Phanerogamen- und Gefässkryptogamen-Arten aus dem Gesamt-

gebiet der Nilländer, in Schweinfurth G., Beitrag zur Flora Aethiopiens, Berlin (3958 species).

Schweinfurth G. & Volkens G. (1897) : Liste des plantes récoltées par les Princes D. et N. Ghika-Comanesti dans leur voyage au pays des Somalis, Bucarest (55 species).

Senni L. (1905) : Piante della Colonia Eritrea coltivate nel R. Orto Botanico di Palermo, Boll. R. Orto Bot. Palermo *4* (1) : 5-14.

— (1905-1914) : Contributo alla conoscenza di alcuni legnami della Colonia Eritrea, Boll. R. Orto Bot. Palermo *4* (2) : 89-98.1905; *7* (1-2) : 37-58.1908; Boll. Studi ed Inform. R. Giard. Colon. Parlermo *1* (2) : 159-168.1914.

— (1935) : Gli alberi e le formazioni legnose della Somalia, Firenze.

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Stapf O. (1907) : The grasses of British Somaliland, Kew Bull. *1907* (6) : 203-226.

Steudel E. (1842) : Ueber die Arten von *Cyperus, Mariscus* und *Kyllingia,* welche in Schimper's 2. Sendung enthalten sind, Flora *25* : 577-585, 593-599.

Terracciano A. (1892) : Contribuzione alla Flora del paese dei Somali, Bull. Soc. Bot. Ital. *1892* : 421-426.

— (1894) : Florula di Anfilah (Contribuzioni, etc. II), Annu. R. Ist. Bot. Roma *5* : 89-121.

— (1897) : Le collezioni botaniche fatte dal Magg. G. Ameglio nella Colonia Eritrea, Boll. R. Orto Bot. Palermo *1* (2), App. III : XIV-XXII.

Ugolini G. (1904) : Le *Lobelie* arborescenti dell'Abissinia, Bull. R. Soc. Tosc. Orticolt. *29* (1) : 25-27.

Urban J. (1897) : *Turneraceae* somalenses a Robecchi-Bricchetti lectae (Contribuzioni, etc. XIII), Annu. R. Ist. Bot. Roma *6* : 189-190.

Vakte W. (1871-73) : *Labiatae* abyssinicae collectionis nuperrimae Schimperianae, Linnaea *37* : 313-332.

— (1875-1876) : Plantae abyssinicae collectionis nuperrimae Schimperianae, Linnaea *39* : 475-518.1875; *40* : 183-221.1876.

— (1875-1882) : Plantae in itinere africano ab J. M. Hildebrandt collectae, Oesterr. Bot. Zeitschr. *25* : 9-11, 94-96, 166-169, 230-232, 323-330.1875; *30* : 77-82, 273-280.1880; Linnaea *43* : 83-100, 305-334, 507-541.1880-82.

Webb P. B. (1854) : Fragmenta Florulae aethiopico-aegyptiacae, etc., Parisiis (plantae praesertim a Figari lectae).

GYMNOSPERMAE.

CONIFERAE.

TAXACEAE.

Podocarpus L'Her. ex Pers. 1807 (D. H. 15).

Podocarpus gracilior Pilger 1903.

Podocarpus elongata Auct. non Willd. : Rich. 1851, Schweth. et Asch. 1867, Sacleux 1909; *P. falcata* Auct. non R. Br. : Engl. 1892, Schweth. 1893, Pir. et Engl. 1898; *Taxus elongata* Auct. non Ait : Roth in Harris 1844.

Typus : *Petit* (Ouogerate).

Aethiopia : E.A.S.GS.H. — Africa Tropica : Ke.Ug.N-Ta?N-Tr.

Nomina indigena : legbá, leggevá, leggewa, legghiá, sigba, siggwa, sigwa, zegbá, zigbá, zighiba, zugba (amhara), birbirsá, birbirsó, birbirssa, birbissa, brbrsa (galla), daguccio (sidamo), birbira (dauro), dschiddo (kaffa).

PINACEAE.

Juniperus L. 1753 (D. H. 45).

Juniperus procera Hochst. ex Endl. 1847.

Sabina procera (Hochst.) Antoine 1857-60; *J. abyssinica* Hort. ex C. Koch 1872.

Juniperus virginiana Auct. non L. : Fresen. 1837; *J. excelsa* Auct. non Marsch. Bieb : Roth in Harris 1844; *J. polycarpos* Auct. non C. Koch : Chiov. 1932, 1935.

Typus : *Schimper* 537 (Adda-Mariam prope Endschedcap in Semien).

Aethiopia : E.A.S.H.GS.SF.SB.N-SO. — Africa Tropica : Ke.Ug.Ta.NW-Ny.SO-Con.

Nomina indigena : deet, deit, det, dset, etheda, ted, teht, tett, thed, theda, theid, thid, sadd, zadd, zagd (amhara), nerret, nerrett, tzeedi, zähdi, zeddi, zeheddi (tigre), ssahaddi, ssahadi, sakhadi, ssakhadi, ssahheddi, tsahadi, zahadi, zahaddi, zähhaddi (tigrinia et tigre), saghtí, tsadí, tzadé, tzadí (tigrinia), deiyb, deiyib, deyib, sigib, taiib, tajib (somali : SB), zerida (somali : SF), gátira,

gattirá (galla), daughera (djam-djam), iudes, judes (boran), sserid (saho), sareda (teltal).

Observationes. — 1. — Decoctum medicamentum sudoriferum et emmenagogum praebet.

2. — In Arabia occid. sine dubio deest. Stapf (1917) opinavit et Chiovenda (1932, 1935) pro certo habuit, specimina e N-SO. et SB. ad *J. polycarpon* C. Koch (*J. macropoda* Boiss. 1884) referenda esse, speciem in Mascat, Per.Afg.Ana.Cauc.W-Tib.W-Him. diffusam. Haec opinio vero nullo modo probata est.

Juniperi species indeterminata.

Nomen indigenum : kurbé, waibó (saho).

GNETALES.

GNETACEAE.

Ephedra L. 1753 (D. H. 46).

Ephedra Alte C. A. Mey. 1846.

an *Ephedra aphylla* Forsk. 1775, nom. seminud.

Syntypi : *Schimper* 280 ♀, 316 ♂ (Arabia).

Aethiopia : SB. — Africa Tropica : Nu. — Extra Africam Tropicam : Aeg.N-Af.Ar.Sin.Pal.Syr.

Nomina indigena : alte (arabice), hildagorle (somali : SB.).

ANGIOSPERMAE.

DICOTYLEDONES.

CASUARINACEAE.

Casuarina (Rumph., Adanson) Forst. 1776 (D. H. 185).

Casuarina equisetifolia Forst. 1776.

Casuarina africana Lour. 1790.

Typus : *Rumphius* (Amboina).

Aethiopia : E.SO. — Africa Tropica : Ta.Za.Mo.Ca.Senl. — Extra Africam Tropicam : Aeg.Mad.Mas.Cey.IN.Phil.O-As.Pol.Au.NS.

Observatio. — In Africa ornamenti gratia tantum culta.

Casuarina stricta Ait. 1789.
Typus : ex Australia orientali.
Aethiopia : SO. — Extra Africam : Au. Tas.
Observatio. — In Africa hic illic culta.

PIPERACEAE.

Piper L. 1753 (D. H. 1862).

Piper capense L. f. 1781.
Typus : *Thunberg* (Caput bonae spei).
Aethiopia : GS. — Africa Tropica : Ke.Ug.Ta. Ny.Mo.Rh.N-Tr.O-Con.SO-Con.Ca.FP.Tho. — Extra Africam Tropicam : Tr.S-Af.Com.

Piper sarmentosum Roxb. (1814) 1832.
Piper diffusum Blume ex Miq. 1847, non Vahl 1804; *Peperomia sarmentosa* A. Dietr. 1831; *Chavica sarmentosa* Miq. 1843.
Typus : *Smith* (Malay Islands).
Aethiopia : GS (Caffa; fide Fiori 1940). — Extra Africam : Ind.IN.
Observatio. — Probabiliter olim cultum, nunc efferatum.

Peperomia Ruiz et Pav. 1794 (D. H. 1866).

Peperomia abyssinica Miq. 1845.
Peperomia emarginata De Wild. 1920.
Typus : *Schimper* 1319 (Vallis Mai-Sciaha in Semien).
Aethiopia : E.A.S.GS.H. — Africa Tropica : Ke.Ug.N-Ta.Con.Ca.Tho.

— var. **subrotundata** Chiov. 1911.
Typus : *Chiovenda* 1043 (Bambolô in Dembea).
Aethiopia : A.

Peperomia pellucida (L.) H. B. K. 1815.
Piper pellucidum L. 1753; *Peperomia Vogelii* Miq. 1845; *Peperomia freireaefolia* Rich. 1851; *Peperomia exigua* Miq. var. *freireifolia* C. DC. 1869; *Peperomia triadophylla* Peter 1932.
Typus : *Plumier* (ex America calidiore).
Aethiopia : E.O-A. — Africa Tropica : Ta.Con. Mo.An.Ca.FP.Tho.Ni.IC.SL.Dah.Li.Senl.GuiF. — Extra Africam Tropicam : fere pantropica.

Peperomia reflexa (L. f.) A. Dietr. 1831.

Piper reflexum L. f. 1781; *Micropiper pusillum* Miq. 1839.

Typus : *Thunberg* (Caput bonae spei).

Aethiopia : H.GS. — Africa Tropica : Ke.Ug. Ta.Con.Ny.S-Rh.Tr.Ca.GuiF.Tho? — Extra Africam Tropicam : S-Af.Réu.Mau.Mad.Soc.Com.As.tr.Pol.Am.tr. et fere pantropica.

SALICACEAE.

Populus L. 1753 (D. H. 1872).

Populus euphratica Olivier 1807.

Typus : *Olivier* (ad flumen Euphratem).

Extra Africam Tropicam : N-Af.Pal. usque ad C-As.

— ssp. **Denhardtiorum** Engler 1898.

Populus Denhardtiorum Dode 1909.

Typus : *Thomas,* anno 1896 (Korokoro ad flumen Tana in Kenya).

Aethiopia : verisimiliter in S-SO. — Africa Tropica : Ke.

Salix L. 1753 (D. H. 1873).

Salix subserrata Willd. 1806.

Salix safsaf baelledi Forsk. 1775, nom. nud.; *S. Safsaf* Forsk. ex Trautvetter 1836; *S. octandra* Sieber ex Rich. 1851.

Typus : *Forskal* (Aegyptus).

Aethiopia : E.A.S. — Africa Tropica : Nu.Senr. S-SuA.Dar.Ta.Ny.S-Rh.Tr.An. — Extra Africam Tropicam : Aeg.Pal.Syr.

Nomina indigena : goea, goeha, göhra, mecciellá, ha (amhara), quea (tigrinia), safsaf (arabice).

— var. **cyathipoda** (Anders.) Cuf. comb. nov.

Salix cyathipoda et *S. axillaris* Anders. ex Rich. 1851; *S. Safsaf* var. *cyathipoda* cum forma *abyssinica* Anders. 1867; *S. Blumhardtiana* Schimp. ex Hochst. 1841 nom. nud.

Typus : *Quartin-Dillon* (Assay in Tigre).

Aethiopia : E.A. — Africa Tropica : Ta.Rh.

Nomina indigena : göhe (amhara), obel (prob. tigre : Seraè in E.).

MYRICACEAE.

Myrica L. 1753 (D. H. 1874).

Myrica salicifolia Hochst. ex Rich. 1851.

Syntypi : *Schimper* 1093, 1135, 1327 (Haramat, Endschetcap, Dschenausa).

Aethiopia : E.A.S H. — Africa Tropica : Ke.Ug. N-Ta.O-Con.RU.

Nomina indigena : baroddu, dedehó, kalaa, kalava, scinet, shunatz (amhara), näwi, nehbí, neuí, neví (tigrinia), abaai, catabá, radji (galla).

Observatio. — Lignum ad usum technicum adhibetur.

FAGACEAE.

Quercus L. 1753 (D. H. 1893).

Quercus Robur L. 1753.

Quercus pedunculata Ehrh. 1790.

Typus : ex Europa.

Aethiopia : E. — Extra Africam Tropicam : Af.Eu.Ana.Cauc.

Observatio. — Fide Castellani 1946 ornamenti gratia culta prope Asmara.

ULMACEAE.

Celtis L. 1753 (D. H. 1898).

Celtis integrifolia Lam. 1797.

Mertensia integrifolia Roem. et Sch. 1820; *Momisia Lamarckii* Blume 1856.

Typus : *Adanson* (Senegal).

Aethiopia : E.GS. — Africa Tropica : SuA.Senr. Cor.Gh.Ug.Ni.To.GC.IC.GuiF.SuF.Gam.Senl. — Extra Africam Tropicam : Ar.

Nomen indigenum : girbi-adi (Lekemti in GS.).

Celtis Kraussiana Bernh. ex Krauss 1845.

Celtis vesiculosa Hochst. ex Planch. 1848; *C. Kraussiana* var. *flavescens* Engler ex Almagia 1903.

C. australis Auct. non L. : Rich. 1851, Schwfth. et Asch. 1867, Penzig 1893.

Typus : *Krauss* (Tafelberg prope Natal).

Aethiopia : E.A.S.GS.H.SB. — Africa Tropica : Ke. Ug.Ta.O-Con.Ny.Mo.Rh.Tr.An. — Extra Africam Tropicam : S-Af.Ar.

Nomina indigena : ciaí (amhara), auá, gaua, goa, hauá (tigrinia), ciarí, motócomo (galla), cacciho (mao), ciabali (M. Merara in E.), kahiró (ad lacum Tana), bodar (somali : SB.).

Trema Lour. 1790 (D. H. 1902).

Trema guineensis (Schum.) Ficalho 1884.

Celtis guineensis Schum. 1827; *Sponia guineensis* (Schum.) Planch. in DC. 1873.

Typus : *Thonning* (Guinea).

Africa Tropica : fere ubique. — Extra Africam Tropicam : S-Af.Mad.Com.Ar.

Observatio. — Speciei sat polymorphae typus in Aethiopia adhuc desideratur.

— var. **asperata** (Solms) Cuf. comb. nov.

Sponia orientalis Planch. var. *asperata* Solms in Schwfth. 1867; *Sponia Hochstetteri* Buch. ex Planch. in DC. 1873; *Trema Hochstetteri* (Buch.) Engler 1892; *T. guineensis* var. *Hochstetteri* Engler 1895.

Sponia orientalis Auct. non Planch. : Schwfth. et Asch. 1867, Penzig 1893, Senni 1914.

Syntypi : *Schimper* 195, 1162, 2182 (flumen Ussla, Semien versus Lasta, Dehli-Dikeno).

Aethiopia : E.O-A.S-SO. — Africa Tropica : Ke.Ug.Ta.Ny.An.Gab.Ca. — Extra Africam Tropicam : Ar.

Nomen indigenum : balambal-dured (somali : Mansur).

Observatio. — Alibi quoque in area speciei expectanda.

Barbeya Schwfth. 1891 (D. H. 1907).

Barbeya oleoides Schwfth. 1891.

Syntypi : *Schweinfurth* 621, 622, 1189, 1190 (Addi-Beddel prope Azzagà, M. Sabber prope Gheleb).

Aethiopia : E.H. — Extra Africam : Ar.

Nomina indigena : leischamm, leisciam (tigre), harumptah, harumtá, harumtäh (tigrinia), kemb, kimb (arabice), garri (Harar).

— ssp. **Arussorum** Chiov. 1929.
Typus : *Basile* 326 (Laga-Hida).
Aethiopia : H.GS.

MORACEAE.

Morus L. 1753 (D. H. 1913).

Morus alba L. 1753.
Typus : ex China.
Aethiopia : E.
Observatio. — In Africa sicut in plurimis regionibus culta.

Morus mesozygia Stapf 1909.
an *Celtis lactea* Sim 1909; *Morus lactea* (Sim) Mildbraed 1921 ?
Typus : *Chevalier* 16267 (Zaranou in Côte d'Ivoire).
Aethiopia : GS. (Uollega; fide Giordano 1939-40). — Africa Tropica : C-Con.Ca.S-Ni.To.GC.IC.Senl.
Nomina indigena : shantó, sacío (galla).
Observatio. — Clarus Hauman (in F. C. B. R. U.I. : 55.1948) hanc speciem adhuc male cognitam cum *M. lactea* (Sim) Mildbr. congruere suspicatus est, quae in Ug?Ta.Mo.SO-Con. reperta fuit.

Morus nigra L. 1753.
Typus : ex Italia.
Aethiopia : E.A? — Africa : An.Aeg.
Observatio. — E Persia boreali oriunda videtur et in plurimis regionibus calidioribus, sicut in Africa quoque passim colitur.

Dorstenia L. 1753 (D. H. 1931).

Dorstenia Barnimiana Schwfth. 1862.
Kosaria Barnimiana Schwfth. 1863.
Typus : *Hartmann* (Djebel Fazogl in Sennaar).
Aethiopia : A. — Africa Tropica : Senr.O-Con. usque ad S-Ta.

— var. **ophioglossoides** Engler 1898.
Dorstenia ophioglossoides Hochst. ex Bur. in DC. 1873.
Typus : *Schimper* 402 (Debra-Eski in Semien).
Aethiopia : A.

— var. **Telekii** Engler 1898.
Dorstenia Telekii Schweth. 1892.
Typus : v. *Höhnel* 28 (Kikuyu in Kenya).
Aethiopia : SO. — Africa Tropica : Ke.

— var. **tropaeolifolia** Rendle 1916.
Kosaria tropaeolifolia Schweth. 1868; *Dorstenia t.* (Schweth.) Bur. in DC. 1873.
Typus : *Schweinfurth* 564 (flumen Gendua prope Gallabat).
Aethiopia : A. — Africa Tropica : Ke.Senr.

Dorstenia crispa Engler 1898.
Dorstenia Phillipsiae Hook. f. 1899; prob. *D. arabica* Hemsl. 1899.
Typus : *Riva* 441 (Gerima ad flumen Daua).
Aethiopia : SB.SO.GS. — Africa Tropica : Ke. — Extra Africam Tropicam : prob. Ar.
Nomina indigena : gussduruei (somali : Belet-Uen), bogohujed (somali : Warsangheli), ged-ambar (somali : SB.).

— var. **pachypoda** Chiov. 1916.
Typus : *Paoli* 779 (Bur-Egherta).
Aethiopia : SO.
Nomen indigenum : in (somali).
Observatio. — Ulterius investiganda.

Dorstenia cuspidata Hochst. ex Rich. 1851.
Kosaria cuspidata Hochst. 1844, nom. nud.
Typus : *Schimper* 1727 (Djeladjekanne ad flumen Tacazze).
Aethiopia : E.A?

Dorstenia Ellenbeckiana Engler 1902.
Typus : *Ellenbeck* 2018 (Burkaré in Arussi).
Aethiopia : H.

Dorstenia foetida (Forsk.) Schweth. et Engl. ex Schweth. 1896.
Kosaria foetida Forsk. 1775; *Dorstenia radiata* Lam. 1786; *Cosaria Forskahlii* Gmel. 1791; *Kosaria obovata* Hochst. 1844 nom. nud., Solms ap. Schweth. 1867; *Dorstenia obovata* (Hochst.) Rich. 1851; *D. foetida* var. *obovata* Schweth. et Engl. 1898.
Typus : *Forskal* (Yemen).
Aethiopia : E.A.H.SB. — Extra Africam : Ar.
Nomina indigena : kosar (arabice), ambar (somali : Afard in SB.).

Dorstenia palmata Engler 1894.
Kosaria palmata Schwfth. 1874 nom. nud.
Typus : *Schweinfurth* 1881 (Seriba-Ghattas).
Aethiopia : GS. — Africa Tropica : Gh.Ds.

— var. **integrifolia** Chiov. 1939.
Syntypi : *Cufodontis* 230, 320 (Neghelli, Arero).
Aethiopia : GS.

Dorstenia triternata Chiov. 1940.
Typus : *Reghini* 10 (El-Marà in Ogaden).
Aethiopia : NW-SO.

Bosqueia Thouars ex Baill. 1863 (D. H. 1960).

Bosqueia Phoberos Baill. 1867.
Bosqueia cerasiflora Volk. ex Engl. 1898.
Syntypi : *Boivin* (Zanzibar et Mombasa).
Aethiopia : N-GS — Africa Tropica : Ke.Ug.Za. Ta.Mo.
Nomina indigena : shoró, juia (galla).

Ficus L. 1753 (D. H. 1961).

Ficus abutilifolia (Miq.) Miq. 1867.
Urostigma abutilifolium Miq. 1847.
Typus : *Kotschy* 462 (Fazogl).
Aethiopia : prob. W-A. — Africa Tropica : Senr.
Observatio. — Fide cl. Hutchinson (1916) species bona.

Ficus acrocarpa (Miq.) Steud. ex Miq. 1867.
Urostigma acrocarpa cum var. *β* Miq. 1847 (p. 557); *U. Dekdekena* Miq. 1847 (p. 558); *Ficus Dekdekena* (Miq.) Rich. 1851; *Ficus acrocarpa* var. *saligna* Miq. 1867; *Ficus Dekdekena* var. *acrocarpa* Almagià 1903; *F. Dekdekena* var. *pubiceps* Milder. et Burr. 1911.
Typus : *Schimper* 627 (Mai-Dogale).
Aethiopia : E.A.GS.H. — Africa Tropica : Senr. Cor.S-SuA.Ug.Ta.Con.An.Ca.N-Ni.IC.GC.
Nomina indigena : cioghonte, ciogonté, dekdekena, dscherande, tschoghonte (tigrinia), talcus, talkus, talqus (tigre), tschibba (amhara).

Ficus brachypoda Hutch. 1915.

Typus : *Dawe* 290 (Buddu in Uganda).

Aethiopia : A. — Africa Tropica : Ke.Ug.Ta?

— var. **scioana** Chiov. 1937.

Typus : *Taschdjian* 145 (Kachissy).

Aethiopia : S.

Nomen indigenum : scheolla (amhara).

Observatio. — Nomine indigeno indice cum *F. Sur* comparanda.

Ficus capreaefolia Del. 1843.

Ficus antithetophylla Steud. (ex Hochst. 1844 nom. nud.) ex Miq. 1848; *F. tridentata* Fenzl 1844 nom. nud.; *Urostigma* spec. (lex. Dux de Wuerttemberg, in Fazogl) Solms ap. Schweth. 1867; *F. Paolii* Pampan. 1915.

Typus : *Ferret* et *Galinier* (ad flumen Tacazze).

Aethiopia : E.A.GS.S-SO. — Africa Tropica : Ug.Senr.SuA.NN.Gh.Cor.Ta.Con.Ny.Mo.Rh.Tr.Ca.N-Ni.To.Gam.

Nomina indigena : bellass, bellass-kolla, belless (tigrinia), balas (saho), az-san (tigre), lubeto (somali : Buloburti), mocoi, muchi (somali : Djuba).

Observatio. — Fructus ab indigenis eduntur.

Ficus Carica L. 1753.

Typus : ex Europa merid. et Asia.

Aethiopia : sine loco speciali, sine dubio culta.

Observatio. — Plurimis locis in Med. et Ar. usque ad C-As. et O-As. colitur.

Ficus Dahro Del. 1843.

Ficus benghalensis Auct. non L. : Rich. 1851; *Urostigma benghalense* Auct. non Gasp. : Solms ap. Schweth. 1867, Schweth. et Asch. 1867; *Ficus vasta* Auct. non Forsk. : Milder. et Burr. 1911, saltem quoad exs. citata, forsam aliorum quoque auctorum florae Aethiopicae pro parte.

Typus : *Ferret* et *Galinier* (« plateau rouge » in Chire).

Aethiopia : E.A. (Adua, Bellaka; *Schimper* 693, 474, 1934).

Nomina indigena : dahro, daro (tigrinia), uarcá, uorká, worka (amhara).

Observatio. — Saepissime cum *F. vasta* confusa.

Ficus discifera Warb. 1905.

Typus : *Schweinfurth* 548 (Djebel Arang versus Abu-Haras).

Aethiopia : SF. (fide Chevalier 1939). — Africa Tropica : Senr.Nu.Ug.N-Ni.

Observatio. — Ulterius investiganda.

Ficus exasperata Vahl 1806, non Roxb. 1832.

Ficus scabra Willd. 1801, non Forst. 1786; *F. serrata* Forsk. 1775, non L. 1759 nom. nud.

Typus : *Isert* (Gold Coast).

Aethiopia : E. (Hamasen, leg. *Senni* 620; fide Lanza et Mattei 1910). — Africa Tropica : Ke.Ug. usque ad Mo. An.Tho.FP. usque ad Senl. — Extra Africam : Ar.

Nomen indigenum : haschref (arabice).

Observatio. — Nomenclaturae legibus (Recomm. 54 D) obtemperans, nomen Forskalii propter homonymiam rejicere malui.

Ficus glumosa Del. 1826.

Urostigma glumosum et *U. fazokelense* Miq. 1847; *Ficus fazokelensis* Miq. 1867; *F. glumosa* var. *lanuginosa* Martelli 1886.

Typus : *Cailliaud* (Djebel Mouyl in Meroë).

Aethiopia : E.A.SB. — Africa Tropica : Nu.Senr. Cor.Dar.Bo.Ds.NN.Con.Ta.An.Ca.Ni.SL.GuiF.Senl. — Extra Africam : Ar.

Nomina indigena : cioghonte, tcecomti, tschoghonte, tschoqonte, tciahamté (tigrinia), deer-ad (somali : SB.), berdeh (somali : SB.).

Observatio. — Mildbraed et Burret 1911 hanc cum *F. Sonderi* contraxerunt.

— var. **glaberrima** Martelli 1886.

Ficus glumosa var. *intermedia* Mart. 1886.

Typus : *Beccari* 40 (M. Deban prope Keren).

Aethiopia : E.A. — Africa Tropica : Nu.Cor. Dar.SuA.Ug.Con.Ca.N-Ni.To.SL.GuiF.

Ficus gnaphalocarpa (Miq.) Steud. ex Rich. 1851.

Sycomorus gnaphalocarpa Miq. 1848; *S. trachyphylla* Miq. 1848; *Ficus trachyphylla* Fenzl (1844 nom. nud.) ex Miq. 1867.

Typus : *Schimper* 874 (Djeladjekanne prope flumen Tacazze).

Aethiopia : E.A.H?S.SB. — Africa Tropica : Senr. Ds.SuA.SuF.Ug.N-Ta.Con.Mo.Rh Be.An.SW-Af.Ca.N-Ni.GuiF. To.GC.SL.Senl. — Extra Africam Tropicam : CV.

Nomina indigena : bamba, warka (amhara).

Ficus Hochstetteri (Miq.) Rich. 1851.

Urostigma Hochstetteri Miq. 1847; *Ficus Schimperi* Rich. var. *Hochstetteri* Mildbr. et Burr. 1911.

Typus : *Schimper* 373 (Schahagenne pr. Adua).

Aethiopia : E. — Africa Tropica : Ke.Ta.RU.Con.

Nomina indigena : afa-kamo, afa-kumo (tigrinia).

Ficus ingens (Miq.) Miq. 1867.

Urostigma ingens et *U. xanthophyllum* Miq. 1847; *Ficus xanthophylla* (Miq.) Steud. ex Mart. 1886; *F. Schimperiana* Hochst. ex Rich. 1851; *F. somalensis* Vatke ex Engl. 1904 nom. nud.; *F. lutea* var. *Schimperiana* et var. *xanthophylla* Fiori 1912.

Urostigma luteum Auct. non Miq. : Schwfth. et Asch. 1867; *Ficus lutea* Auct. non Vahl : Penzig 1893, Schwfth. 1893, Mildbr. et Burr. 1911 pro parte max., Schwartz 1939.

Typus : *Schimper* 1771 (Djeladjekanne prope flumen Tacazze).

Aethiopia : E.A.SF.SB. — Africa Tropica : fere ubique usque ad Senl. — Extra Africam Tropicam : SO-Af.Ar.

Nomina indigena : dscherande-harmass, dscherande-hharmath, dscherantha-gihe, tchérantha-gihe, tscherantha-gehe (tigrinia), cioghonte, tschogonte (tigre et saho), talcusa, talqusa (bilin : Bogos), malahalo, tschaqåmthe (saho), beddah, dhurruf (arabice), deer-ad, lufo (somali : SB.), kafanú (amhara : lacus Tana).

Ficus ingentoides Hutch. 1915.

Ficus Stuhlmannii var. *glabrifolia* Warb. 1894.

F. lutea Auct. non Vahl : Mildbr. et Burr. 1911 pro parte min.

Syntypi : *Stuhlmann* 4144, 750, 4585 (Nyangezi, Bussisi, Mwanza).

Aethiopia : E. — Africa Tropica : Dar.N-Ta.O-Con.

Ficus mallotocarpa Warb. 1894.

Ficus capensis var. *mallotocarpa* Mildbr. et Burr. 1911.

Typus : *Volkens* 465 (Ugueno).

Aethiopia : S. — Africa Tropica : Ke.Ta.Za.Con. RU.Rh.Ny?Tr.An.Ca.FP.

Ficus neriifolia Rich. 1851.

Typus : *Quartin-Dillon* (Mai-Gouagoua prope Adua).

Aethiopia : E.

Observatio. — Ficus salicifolia valde similis et forsan idem.

Ficus palmata Forsk. 1775.

Ficus morifolia Forsk. 1775, non Vahl 1806; *F. Forskahlii* Vahl 1806; *F. pseudo-Carica* Miq. 1848; *F. pseudo-Carica* var. *tomentosa* Rich. 1851; *F. Petitiana* Rich. 1851; *F. palmata* var. *Petitiana* Fiori 1912; *F. Baeles* Forsk. ex Chiov. var. *morifolia* et var. *palmata* Chiov. 1923.

Typus : *Forskal* (Hadie in Yemen).

Aethiopia : E.A.S.H.SB. — Africa Tropica : Dar. — Extra Africam Tropicam : Aeg.Ar.Sin.NW-Ind.W-Him.

Nomina indigena : baeles (arabice), bellas, bellass, beless, belles, belless (tigrinia), belás (amhara), balás (saho), az-san (tigre).

Ficus platyphylla Del. 1826.

Urostigma platyphyllum (Del.) Kotschy ex Schwfth. et Asch. 1867; *U. Kotschyanum* Miq. 1847; *Ficus Kotschyana* (Miq.) Miq. 1867.

Typus : *Cailliaud* (Meroë).

Aethiopia : A.S-SO. — Africa Tropica : Nu. Senr.Cor.Ds.Ug.SuF.Ca.N-Ni.To.GC.Gam.Senl.

Observatio. — Quoad Somaliam ulterius observanda.

Ficus populifolia Vahl 1790.

Urostigma populifolium Miq. 1847; *U. catalpaefolium* Miq. 1847; *Ficus populifolia* var. *somalensis* Warb. 1905.

Ficus religiosa Auct. non L. : Forsk. 1775.

Typus : *Forskal* (Uadi-Zebid in Arabia).

Aethiopia : E.A.SF.SB.SO. — Africa Tropica : Nu.Senr.S-SuA.Ke.Ug. O-Con.N-Ta.SuF.Ca.N-Ni.To.Dah. — Extra Africam : Ar.

Nomina indigena : mudah, vudah (arabice), berd, berde (somali : Nogal), nidir, hamash (somali : SB.).

Ficus Praetoriae Burtt-Davy 1910.

F. salicifolia var. *australis* Warb. 1906.

Ficus salicifolia Auct. non Vahl : Engler 1904, Mildbr. et Burr. 1911 pro parte, Drake-Brockman 1912, Chiov. 1929, Peter 1932 pro parte, Senni 1935 pro parte, Hutch. et Br. 1941, Gilliland 1952.

Typus : *Engler* 2805 (Pretoria).

Aethiopia : SB.N-SO. — Africa Tropica : Ta.

Rh.Mo.N-Tr. — Extra Africam Tropicam : Tr.S-Af.Soc.

Nomina indigena : berdai, berdaier, daher (somali : Nogal et Darror), de-er (somali : SB.).

Observatio. — Huic speciei *F. salicifoliae* maxime affini referenda sunt specimina *Hildebrandt* 1460, *Drake-Brockman* 418, 427, 235, *Gillett* 4052.

Ficus punctata Lam. 1786.

Ficus aggregata Vahl 1806.

Typus : ex India orientali.

Aethiopia : E. — Extra Africam : Mad.Sey.Ind.

Nomen indigenum : sibacá (Erythraea).

Observationes. — 1. — In Africa probabiliter saepius culta.

2. — Pro synonyma huius speciei indicae cl. Chevalier 1912 errore *F. Schimperi* et *F. Rokko* habuit, quae vero ad *F. Thonningii* referendae sunt.

Ficus riparia (Miq.) Hochst. ex Rich. 1851.

Sycomorus riparia Miq. 1848.

Ficus capensis Auct. non Thunb. : Mildbr. et Burr. 1911, quoad exs. citatum.

Typus : *Schimper* 1585 (in districtu Mandel).

Aethiopia : E.A.

Nomen indigenum : ciolá (amhara : Gondar).

Ficus Ruspolii Warb. 1905.

Typus : *Ruspoli* et *Riva* 526 (Boran-Uatà in Ciaffa).

Aethiopia : GS.

Ficus salicifolia Vahl 1790.

Urostigma salicifolium (Vahl) Miq. 1847.

Ficus indica Auct. non L. : Forsk. 1775.

Typus : *Forskal* (Uadi-Zebid et Uahfat in Arabia).

Aethiopia : E.SF.SB. — Africa Tropica : Senr. Cor.OuC.Con. — Extra Africam Tropicam : Alg.Ar.

Nomina indigena : thâab (arabice), teloukat (arabice : Algeria).

Ficus Scassellatii Pampan. 1915.

Typus : *Scassellati* et *Mazzocchi* V/31 (Bidi in Goscia).

Aethiopia : S-SO.

Nomina indigena : berdé, calicecce (somali : flumen Djuba).

Observatio. — Hanc adhuc incertam speciem cl. Chiovenda 1932

cum *F. Kirkii* Hutch. 1915 et *F. magnolioides* Borzí 1897 comparavit.

Ficus somalensis Chiov. 1929.

Ficus changuensis Warb. var. *somalensis* Pampan. 1915.

Syntypi : *Paoli* 722, 933 (Bur-Meldac, Berdale), *Stefanini* 1217 (Baidoa).

Aethiopia : SO.

Nomina indigena : berd, berde (somali), micoi (somali : El-Meghet).

Ficus Sur Forsk. 1775.

Ficus panifica Del. 1843; *Sycomorus panifica* (Del.) Miq. 1848; *S. Sur* (Forsk.) Miq. 1849; *Ficus Sur* var. *erythraea* Fiori 1910.

Ficus capensis Auct. non Thunb. : Schweth. 1896, Senni 1905, Engler 1910, Chiov. 1937, Hutch. et Br. 1941.

Typus : *Forskal* (Djöblae in Arabia).

Aethiopia : E.A.S.H. — Extra Africam : Ar.

Nomina indigena : sur (arabice), choddo, codó, gotho, khoddo (tigrinia), scioala, sciolá, sciuollá, uacciá (amhara), harbu (galla : Harar).

Observationes. — 1. — Cortex edulis, unde nomen synonymi.

2. — *F. capensis* veridica, huic certe affinis, Ugandam attingit, sed in Kenya et Aethiopia deest.

Ficus Sycomorus L. 1753.

Ficus Sycomorus vera et *F. Chanas* Forsk. 1775; *Sycomorus antiquorum* Gasp. 1845; *S. rigida* Miq. 1848.

Typus : ex Aegypto.

Aethiopia : E.A.GS.S?H.SF.SB.SO. — Africa Tropica : Nu.Senr.Cor.SuA.Ke.Ug.Ta.O-Con.RU.Ny.Mo.Rh.Tr.An. — Extra Africam Tropicam : Aeg.SO-Af.Com.Ar.

Nomina indigena : saglá, schagla, scheqla, sciagla (tigre et tigrinia), scioala, worka (amhara), bamba (amhara : Agaumeder), lugó, woda (galla), machi, moccó, mocoi-adda, mocoi-ghedud, muccó, muché, muchei, mucoi (somali), dare, durreh (somali : SB.).

Observatio. — Ab antiquissimis temporibus culta in terris niloticis.

Ficus Thonningii Blume 1836.

Ficus microcarpa Vahl 1806, non L. f. 1781; *Urostigma Schimperi* Miq. 1847; *U. Thonningii* (Bl.) Miq. 1848-49; *Ficus Schimperi* (Miq.) Hochst. ex Rich. 1851; *F. Hochstetteri* var. *glabrior* Miq. 1867; *F. Rokko* Warb. et Schweth. 1894.

Typus : *Thonning* (Gold Coast).

AETHIOPIA : E.A.H.GS. — AFRICA TROPICA : Ke. Ug.Ta.Con.RU.Gh.NN.OuC.Ny.Rh.An.Ca.Ni.To.GC.SL.GuiF.

Nomen indigenum : shorla (Harar).

Ficus vallis-Choudae DEL. 1843.

Sycomorus Schimperiana MIQ. 1848; *Ficus Schweinfurthii* MIQ. ap. SCHWFTH. 1868.

Typus : *Ferret* et *Galinier* (flumen Beleghez in valle Chouda [Shoata] in Semien).

AETHIOPIA : A. — AFRICA TROPICA : Senr.Gh.NN. Cor.Ug.Con.RU.Ta.N-Ny.OuC.Ca.Ni.To.GC.SL.

Nomen indigenum : bambuledé (amhara).

Ficus vasta FORSK. 1775.

Ficus socotrana BALF. 1883; *F. callabatensis, F. hararensis, F. Rivae* WARB. 1905; *F. gallabatensis* WARB. ex ENGLER 1906 (sphalm.).

F. Dahro AUCT. non DEL. : TERRACC. 1897, PAX 1907.

Typus : *Forskal* (Yemen).

AETHIOPIA : E.A.S.GS.H.SB. — AFRICA TROPICA : Nu.Senr.NN.Ug.N-Ta.O-Con. — EXTRA AFRICAM TROPICAM : Soc.Ar.

Nomina indigena : dahró, daro, dharo (tigrinia et tigre), uarcá, uorká, worka (amhara), dembi, kilti (galla), darguna (bilin), endaaro, indaaro (saho), delb, tâlak (arabice), berde, berdeh (somali : SB.).

Observatio. — Nominibus indigenis testantibus cum *F. Dahro* valde simili saepe confusa, tamen distincta species.

— var. **glabrescens** HUTCH. 1917.

Ficus Dahro AUCT. non DEL. : MARTELLI 1886; *F. vasta* AUCT. non FORSK. : ALMAGIÀ 1903 pro parte, MILDBR. et BURR. 1911 pro parte.

Syntypi : *Schweinfurth* 129, 259, 1320 (Ghinda, Saganeiti), *Beccari* 282 (Keren), *Schimper* 693 (Adua).

AETHIOPIA : E.A.H.

Nomina indigena : dahró (tigrinia), uorcá (amhara).

— var. **velutina** FIORI 1910.

Typus : *Fiori* 37 (Ghinda).

AETHIOPIA : E.

Ficus zambesiaca Hutch. 1915.

Syntypi : *Scott* (Katunga in Nyasa) *Kirk* 6, 7 (Sena et Shubanga in Mozambique).

Aethiopia : S-SO. (Transjuba, *Guidotti* 234; fide Chiov. 1932, fig. 232-33). — Africa Tropica : Ny.Mo.

Nomen indigenum : calzeci (somali : Mansur).

Observatio. — Ulterius observanda et, nomine indigeno monente, cum *F. Scassellatii* Pamp. comparanda.

Ficus, species diversae indeterminatae.

Nomina indigena : scioura (somali : Torba), dáarf (tigrinia), kalimtó (tigre), habuká (saho), shoala (amhara).

Cannabis L. 1753 (D. H. 1973).

Cannabis sativa L. 1753.

Typus : ex India orientali.

Aethiopia : A. — Africa Tropica : Ke.Ug.Ta. Mo.Rh.An.Con.Gab.Tho.SL. — Extra Africam Tropicam : Aeg.

Observatio. — In Africa culta tantum, sicut in plurimis aliis regionibus.

URTICACEAE.

Urtica L. 1753 (D. H. 1974).

Urtica dioica L. 1753.

Typus : ex Europa.

Aethiopia : E. — Africa Tropica et Extra : praeter Pol. fere cosmopolita, in Eurasia indigena, in O-As. rarissima.

Urtica simensis Hochst. ex Steud. 1850.

Typus : *Schimper* 1283 (Dibill in Semien).

Aethiopia : A.S. — Africa Tropica : Ke.Ug.

Nomina indigena : sama, samma (amhara et tigrinia).

Urtica urens L. 1753.

Typus : ex Europa.

Aethiopia : E.A.H.SB. — Extra Africam Tropicam : S-Af.N-Af.Ar., hodie fere cosmopolita.

Nomen indigenum : dowu (tigrina).

Urera Gaud. 1826 (D. H. 1978).

Urera Hypselodendron (Hochst.) Weddell 1852.

Elatostema Hypselodendron Hochst. 1844 nom. nud.; *Urtica Hypselodendron* Hochst. ex Rich. 1851; *Urera Schimperi* Weddell 1856.

Typus : *Schimper* 1136 (Endschetcap in Semien).

Aethiopia : E.A.H.GS.S. — Africa Tropica : Ke.Ug.Ta.O-Con.Ny.

Nomina indigena : lankusso (amhara), langusto (Gimma), alge (tigrinia).

Fleurya Gaud. 1826 (D. H. 1982).

Fleurya aestuans (L.) Gaud. 1826.

Urtica aestuans L. 1763; *F. aestuans* var. *Linnaeana* Weddell 1869; *Urtica Schimperiana* Hochst. ex Steud. 1850; *U. divaricata* Forsk. 1775, non L. 1753; *U. hirsuta* Vahl 1790.

Typus : ex Surinam.

Aethiopia : E.A.GS. — Africa Tropica : fere ubique. — Extra Africam Tropicam : pantropica.

Nomina indigena : mehaerreka (arabice), schetscho (kaffitscho).

Observatio. — Species polymorpha fere ubique in regionibus tropicis diffusa.

Fleurya interrupta (L.) Gaud. 1826.

Urtica interrupta L. 1753; *U. lomatocarpa* Hochst. ex Steud. 1850.

Typus : ex India orientali.

Aethiopia : E. — Africa Tropica : Ke.Ta.Con? Gab? — Extra Africam Tropicam : Mad.Ind.Cey.IN. NG.Pol.

Fleurya lanceolata Engler (1894 nom. nud.) 1895.

Typus : *Holst* (Usambara).

Aethiopia : H. (Modjo et Gobeli, leg. *Ellenbeck;* fide Engler 1904, 1915). — Africa Tropica : N-Ta.O-Con.

Girardinia Gaud. 1826 (D. H. 1983).

Girardinia bullosa (Hochst.) Weddell 1854.

Urtica bullosa Hochst. ex Steud. 1850.

U. simensis Auct. non Hochst. : Massa et Sacc. 1939.

Typus : *Schimper* 1409 (Dschenausa in Semien).

Aethiopia : A.GS.S? — Africa Tropica : N-Ta. RU.O-Con.

Nomen indigenum : dogusta (tigrinia).

Observatio. — Fibrarum textilium gratia hinc inde colitur.

Girardinia heterophylla (Vahl) Decne. 1841-44.

Urtica palmata Forsk. 1775; *U. heterophylla* Vahl. 1790; non *Girardinia palmata* Gaud. 1826, nec *G. heterophylla* Decne. var. *palmata* Hook. 1888.

Typus : *Forskal* (Yemen).

Nomen indigenum : schadjaret-el-mehabbe (arabice).

Observatio. — Species typica tantum in Ar. et Him. vivit.

— ssp. **adoënsis** Cuf. comb. nova.

Urtica adoënsis Hochst. ex Steud. 1850 (nr. 11); *U. condensata* Hochst. ex Steud. 1850 (nr. 14); *Girardinia adoënsis* et *G. condensata* (Hochst. ex Steud.) Weddell 1854; *G. condensata* var. *adoënsis* Engl. ex De Wild. 1903.

Typus : *Schimper* 101 (Adua).

Aethiopia ! E.A.H.GS. — Africa Tropica : Ke. Ta.RU.Con.Ny.An.O-Ca.S-Ni.IC.GuiF.

Nomina indigena : doba, dowu (tigrinia).

Observatio. — Forsan species propria, sed potius pro subspecie africana habenda.

Pilea Lindl. 1821 (D. H. 1984).

Pilea tetraphylla (Steud.) Blume 1856.

Urtica tetraphylla Steud. 1850; *P. quadrifolia* Hochst. ex Rich. 1851.

Typus : *Schimper* 74 (Adua).

Aethiopia : E. — Africa Tropica : Ke.Ug.Ta. RU.O-Con.Ny.An.Ca.FP. — Extra Africam Tropicam : Mad.

Lecanthus Weddell 1854 (D. H. 1986).

Lecanthus peduncularis (Wall.) Weddell 1869.

Procris peduncularis Wall. (1828 nom. nud.) ex Royle 1839; *Lecanthus Wightii* et *L. Wallichii* Weddell 1854; *Elatostema ovatum* Wight 1853.

Typus : *Wallich* 4634 (Nepalia).

AETHIOPIA : E. vel O-A. (Asega, *Schimper* 637). — AFRICA TROPICA : Ca.FP. — EXTRA AFRICAM : Ind.Him.Cey.IN.Phil.NG.

Pouzolzia GAUD. 1826 (D. H. 1992).

Pouzolzia abyssinica (HOCHST.) BLUME 1856.

Parietaria abyssinica HOCHST. ex RICH. 1851; *Margarocarpus Schimperianus* WEDDELL 1854; *Pouzolzia Schimperi* WEDD. ex SOLMS ap. SCHWFTH. 1867 nom. nud.; *P. guineensis* BENTH. var. *abyssinica* RENDLE 1917.

Typus : *Schimper* 1433 (Mai-Mezano in Tigre).

AETHIOPIA : E. — AFRICA TROPICA : Ta.Con.To.

Observatio. — *P. guineensis* BENTH. a Senl. usque ad Con. et An. diffusa valde affinis et forsan re vera huius mera varietas.

Pouzolzia Erythraeae SCHWFTH. 1896.

Typus : *Schweinfurth* 1658 (vallis Lava).

AETHIOPIA : E.

Pouzolzia fruticosa ENGLER 1902.

Typus : *Ellenbeck,* sine nr. (vallis Erer).

AETHIOPIA : H.

Observatio. — Hanc cl. RENDLE 1917 cum *P. mixta* conjungendam opinatus est.

Pouzolzia mixta SOLMS ap. SCHWFTH. 1867.

Typus : *Cienkowsky,* anno 1848 (Fazogl).

AETHIOPIA : A. — AFRICA TROPICA : Senr. — EXTRA AFRICAM TROPICAM : Ar.

Pouzolzia parasitica (FORSK.) SCHWFTH. 1896.

Urtica parasitica FORSK. 1775; *U. muralis* VAHL 1790; *Margarocarpus procridioides* WEDDELL 1854; *Boehmeria procridioides* (WEDD.) BLUME 1856; *Pouzolzia procridioides* WEDD. 1856.

Typus : *Forskal* (Hadie in Yemen).

AETHIOPIA : E.GS.H. — AFRICA TROPICA : Ke.Ug. Ta.RU.O-Con.Ny.Rh.Tr.An.Ca. — EXTRA AFRICAM TROPICAM : S-Af.Ar.Am.tr.

Nomen indigenum : nedjaa (arabice).

Debregeasia GAUD. 1844-66 (D. H. 2000).

Debregeasia bicolor (ROXB.) WEDDELL 1869.

Urtica bicolor ROXB. (1814 nom. nud.) 1832; *U. salicifolia* ROXB.

1814 nom. nud.; *Boehmeria salicifolia* (Roxb.) Don 1825 nom. nud.; *Morocarpus salicifolius* (Roxb.) Blume 1856; *Debregeasia salicifolia* (Roxb.) Rendle 1917; *Procris hypoleuca* Hochst. ex Steud. 1850; *Boehmeria hypoleuca* Hochst. ex Rich. 1851; *Missiessya hypoleuca* (Hochst.) Wedd. 1854; *Debregeasia hypoleuca* (Hochst.) Wedd. 1856.

Typus : *Roxburgh* (W-Himalaya).

Aethiopia : E.A H. — Extra Africam : Ar.Afg. W-Him.

Nomina indigena : bohha, gossli, sada-bohha, zadá-bohha, zadá-gossli (tigrinia).

Parietaria L. 1753 (D. H. 2007).

Parietaria debilis Forst. 1786.

Parietaria debilis var. *diffusa* Wedd. 1856 p.p.; *P. debilis* var. *gracilis* Wedd. 1869; *P. debilis* var. *micrantha* Wedd. 1869.

P. alsinefolia Auct. non Del. : Rich. 1851, Martelli 1886, Penzig 1893; Lanza et Mattei 1910.

Typus : *Forster* (Nova Seelandia).

Aethiopia : E.A. — Africa Tropica : Ke.Ug. Ta.Nu.Dar.Ca. — Extra Africam Tropicam : praeter Eu. et O-As. fere cosmopolita in regionibus temperatis et montibus tropicis.

Nomen indigenum : bernakhaio-khana (tigrinia).

Observatio. — Species summopere polymorpha ulterius perscrutanda.

Forskohlea L. 1767 (D. H. 2012).

Forskohlea tenacissima L. 1767.

Caidbeja adhaerens Forsk. 1775.

Typus : ex Arabia (et Numidia).

Aethiopia : E.SB. — Africa Tropica : Nu. — Extra Africam Tropicam : Aeg.N-Af.SW-Eu.Ar.S-Per.Afg.Bel.NW-Ind.

— var. **erythraea** Almagià 1903.

Forskohlea tenacissima forma *erythraea* Terracc. 1894.

Typus : *Terracciano* 3/bis (Ins. Anfilah prope Massaua).

Aethiopia : E.

Forskohlea viridis Ehrenb. (ex Desf. 1829 nom. nud.) ex Webb ap. Hooker 1849 (saltem quoad nomen).

Forskohlea viridis var. *Ehrenbergii* Solms ap. Schwfth. 1867.

Typus : *Ehrenberg* (Ins. Hauakel prope Massaua).

Aethiopia : E.O-A.SB. — Africa Tropica : Nu. Su.An? — Extra Africam Tropicam : CV?Soc.Ar.

Observatio. — Specimina ex An. ad *F. candidam* L. f. var. *virescens* Wedd., illa ex CV. ad *F. procridifoliam* Webb referenda videntur.

Droguetia Gaud. 1826 (D. H. 2013).

Droguetia iners (Forsk.) Schwfth. 1896.

Urtica iners Forsk. 1775; *U. verticillata* Vahl 1790; *U. pauciflora* Hochst. ex Steud. 1850; *Pouzolzia pauciflora* (Hochst.) Rich. 1851; *Boehmeria pauciflora* (Hochst.) Blume 1856; *Droguetia pauciflora* (Hochst.) Weddell in DC. 1869; *Forskohlea urticoides* Wight 1853; *Didymogyne abyssinica* Wedd. 1854; *Droguetia diffusa* Wedd. 1854; *Urtica urens* var. *iners* Wedd. in DC. 1869.

Typus : *Forskal* (Hadie in Arabia).

Aethiopia : A. — Africa Tropica : Ug.Ta.O-Con.Ny. — Extra Africam Tropicam : Ar.S-Ind.IN.

Australina Gaud. 1826 (D. H. 2014).

Australina flaccida (Rich.) Wedd. in DC. 1869.

Pouzolzia flaccida Rich. 1851; *Australina Schimperiana* Wedd. 1854.

Typus : *Quartin-Dillon* (Adua et Memsah).

Aethiopia : E.A.S.

Observatio. — Species rarissima post Schimperum denuo nunquam reperta.

Urticacearum species indeterminata (fide Rochet ex Del. 1846).

Nomen indigenum : hamamaro (amhara).

PROTEACEAE.

Faurea Harvey 1847 (D. H. 2034).

Faurea Rochetiana (Rich.) Chiov. ex Pichi Serm. 1950.

Leucospermum Rochetianum Rich. 1851.

an *Faurea speciosa* Auct. non Welw. : Engler 1915 p. p., Peter 1932 p. p.

Typus : *Rochet d'Héricourt* (Debbevar et Lamalmon in Semien).

Aethiopia : E.A.S.GS.

Observationes. — 1. — *Leucospermum Rochetianum* deest in F. T. A. 1910.

2. — Si haec species re vera cum *Faurea speciosa* Welw. (Typus : *Welwitsch* 1622, e Huilla in Angola) convenisset, area amplissima Ug.Ta.O-Con.Ny Mo.Rh.Tr.An.Ca.To.N-Ni.S-Af. amplecteret.

Protea R. Br. 1810 (nom. conserv.)
nec L. 1753 (D. H. 2035).

Protea Gaguedi Gmel. 1796.

Protea abyssinica Willd. 1798.

Typus : *Bruce* (Lamalmon in Semien).

Aethiopia : E.A.S.GS.H. — Africa Tropica : Ke.Ug.RU.O-Con.Ta.Ny.Rh.Tr.An. — Extra Africam Tropicam : SO-Af.

Nomina indigena : gagouday, gaguedi, gongudai, guagedi, guagodai, guaguedi, quagodai (tigrinia), argheg-gafou, aurá,duabá (amhara), jubdo, jubto (galla et kaffitscho), alló, dahanse (galla).

SANTALACEAE.

Osyris L. 1753 (D. H. 2108).

Osyris abyssinica Hochst. ex Rich. 1851.

Fusanus alternifolia R. Br. ap. Salt 1814 nom. nud.; *Osyris rigidissima* Engler 1892.

O. compressa Auct. non (Berg) DC. : Hutch. et Br. 1941.

Typus : *Schimper* 281 (M. Scholoda prope Adua).

Aethiopia : E.A.S.GS.H.SB. — Africa Tropica : Ke.Ta.Ny.S-Rh.Tr.An. — Extra Africam Tropicam : Tr.S-Af.SW-Af.Ar.

Nomina indigena : gerar, karath, keras, kerath, keraz, keretz, qérraz, tokasilla (tigrinia), geraz, karaz (tigre), dingerokola, garad, keret, kharet, tokazallé (amhara), cherezeghi (Hamasen), crubtia-arez (Assaorta), asaso, assasso (somali : SB.), wato (galla).

Observatio. — Cortex ad usum coriarium adhibetur.

— forma **latifolia** Fiori 1940.
Typus : *Saccardo,* anno 1936 (Mega).
Aethiopia : GS.

Osyris parvifolia Baker 1910.
Typus : *Roth* 84 (Domak-Efat).
Aethiopia : S.

Osyris Wightiana Wall. ex Wight 1852.
Osyris arborea Wall. ex DC. 1857; *O. tenuifolia* Engler 1895.
Typus : *Wight* (India orientalis).
Aethiopia : GS.H.SB? — Africa Tropica : Ke. Ug.Ta.RU.SO-Con. — Extra Africam Tropicam : Soc.Ind.Cey. usque ad S-Chi.

Osyridicarpos DC. 1857 (D. H. 2116).

Osyridicarpos Schimperianus (Hochst. ex Rich.) DC. 1857.
Thesium Schimperianum Hochst. ex Rich. 1851; prob. *Osyridicarpos Kirkii* Engler 1895.
Typus : *Schimper* 404 (M. Scholoda prope Adua).
Aethiopia : E.A.S.GS.H. — Africa Tropica : Ke.Ug.Ta.Ny.Mo.
Nomen indigenum : katatimo (tigrinia).

Thesium L. 1753 (D. H. 2118).

Thesium Matteii Chiov. 1912.
Typus : *Negri* 984/bis (M. Oulontai [Alatù] inter lacus Zuai et Langana).
Aethiopia : O-GS.

Thesium radicans Hochst. ex Rich. 1851.
Thesium Wightianum Wall. var. *radicans* DC. 1857.
T. Wightianum Auct. non Wall. : Schwfth. et Asch. 1867, Pax 1907.
Syntypi : *Schimper* 168, 1130 (Dagaber et Enchetcap).
Aethiopia : E.A.S.SB. — Africa Tropica : Ke. — Extra Africam : Ar.

Thesium Schweinfurthii Engler 1895.
Thesium Schweinfurthii var. *djurense* Engler 1895.
Typus : *Schweinfurth* 1909 (Dschur).

AETHIOPIA : H. — AFRICA TROPICA : Ds.Ny.
Observatio. — Species ulterius observanda.

Thesium subaphyllum ENGLER 1895.
Typus : *Volkens* 1712 (Kilimandscharo).
AETHIOPIA : GS. — AFRICA TROPICA : Ke?Ta.Ny.

OPILIACEAE.

Opilia ROXB. 1798 (D. H. 2122).

Opilia celtidifolia (GUILL. et PERR.) ENDL. ex WALP. 1842.
Groutia celtidifolia GUILL. et PERR. 1831.
Typus : *Perrottet* et *Leprieur* (Lamsar in Senegal).
Observatio. — Species typica a Senl. usque ad SuA. et ab Ug. usque ad S-Mo. et An. diffusa in Aethiopia adhuc nondum reperta.

— var. **sphaerocarpa** CHIOV. 1951.
Syntypi : *Corradi* 8420-8427 (locis pluribus inter El Dire et flumen Caschei prope lacum Rudolphi).
AETHIOPIA : GS.

Opilia strobilifera HUTCH. et BR. 1941.
Typus : *Gillett* 4636 (Daba-Bur, 1500 m).
AETHIOPIA : SB.
Nomen indigenum : eri (somali : SB.).

Opilia tomentella (OLIV.) ENGLER 1895.
Opilia amentacea ROXB. var. *tomentella* OLIVER 1868.
Typus : *Kirk* (Zambesi).
AETHIOPIA : W-SO.S-H. — AFRICA TROPICA : Ta. usque ad S-Mo.

OLACACEAE.

Ximenia L. 1753 (D. H. 2136).

Ximenia americana L. 1753.
Ximenia laurina DEL. 1843; *X. americana* var. *inermis* STEUD. ex HOCHST. 1844 nom. nud.; *X. americana* var. *oxypyrena* et var. *sphaerica* CHIOV. 1940.
Typus : *Plumier* (America tropica).
AETHIOPIA : E.A.S.H.SO. — AFRICA TROPICA :

fere ubique. — EXTRA AFRICAM TROPICAM : S-Af. Ind.NG.Am.tr.

Nomina indigena : melahó, mellau, melluch, mellukh, melluoh, melo (tigrinia), malhetta, melhetta (tigre), muloo (Bogos), muhno (Dembesan), ankohé, ankoi, unguai, unkwoi (amhara), mandarut, mandurud, mondruc, morhod, morord, mundurud (somali), ciunducua (somali : Transjuba), amirgudud (somali : Mahaddei).

Observationes. — 1. — Fructus edules.

2. — Species valde polymorpha et late diffusa, verisimiliter in subspecies saltem subdividenda.

LORANTHACEAE.

Loranthus L. 1762 (D. H. 2074).

Loranthus Acaciae ZUCCAR. 1840.

Loranthus laetus R. BR. ap. SALT 1814 nom. nud.; *L. gibbosulus* RICH. 1847; *L. venustus* FENZL ex VAN TIEGH. 1895 nom. nud.; *Tapinostemma venusta* VAN TIEGH. 1895 nom. nud.

Typus : *Schubert* (Jericho in Palaestina).

AETHIOPIA : E.A.GS?SB. — AFRICA TROPICA : Nu. SuA.Cor.Dar.Ug. — EXTRA AFRICAM TROPICAM : Aeg. Ar.S-Pal.

Nomina indigena : daqalla-maitjitjo, dekala-serram, dicalá, drachalá (tigrinia), daqalla-zelloa, degala-zelloa (tigrinia, tigre, agau), kröt-atschiai (tigre), tacattellá (amhara), dilo-yahen (somali : SB.).

Observatio. — Crescit in *Acaciae* speciebus (*etbaica, glaucophylla, Seyal* et aliis), *Combretum* spec., *Dichrostachys nutans, Gymnosporia senegalensis, Rhamnus* spec., *Rhus glaucescens, Tamarix* spec., *Terminalia Brownii, Zizyphus* spec.

Loranthus amblyphyllus CHIOV. 1932.

Typus : *Senni* 137 (Chisimaio).

AETHIOPIA : S-SO.

Observatio. — Crescit in *Terminalia* spec.

Loranthus curviflorus BENTH. ex OLIVER in HOOKER 1880.

Plicosepalus curviflorus (BENTH. ex OLIV.) VAN TIEGH. 1894.

Syntypi : *Plowden* (Abyssinia), *Kirk* (Somali-Coast).

AETHIOPIA : E.S-H.SB.SO. — AFRICA TROPICA : Nu.Ke.Ta.O-Con.Ny. — EXTRA AFRICAM : Ar.

Nomina indigena : cadí, kadí (somali : Afmadu), dillowyan, diloyahen (somali : SB.).

Observatio. — Crescit in *Acaciae* speciebus (*Adansonii, mellifera, nilotica* var. *adstringens, somalensis, spirocarpa* et aliis) et *Capparidaceis.*

Loranthus Dichrostachydis Chiov. 1932.

Typus : *Senni* 482 (Licchitore in Transjuba).

Aethiopia : S-SO.

Observatio. — Crescit in *Dichrostachys glomerata.*

Loranthus Dregei Eckl. et Zeyh. 1835.

Loranthus oblongifolius E. Mey. in sched.; *Erianthemum Dregei* (E. et Z.) van Tiegh. 1895.

Typus : *Drége* 2284 (Vischrivier in Albany).

Observatio. — Species complexa ab Aethiopia usque ad S-Af., in Con. et An. diffusa, sed eius forma typica adhuc in Aethiopia nondum reperta videtur.

— var. **foliaceus** Sprague 1910-11.

Loranthus Dregei Auct. non E. et Z. : Engler 1906.

Syntypi : *Ellenbeck* 797. 1303 (Harar. Walenzo. Djebel-Haquim). *Scheffler* 193, 346 (Kibwesi), *Kässner* 575 (flumen Makindu).

Aethiopia : H. — Africa Tropica : Ke.

— var. **kerenicus** Sprague 1910-11.

Loranthus Dregei forma *obtusifolia* Engler 1894 p.p..

Loranthus oblongifolius Auct. non Mey. : Schweth. et Asch. 1867, Martelli 1886; *L. Dregei* Auct. non E. et Z. : Lanza et Mattei 1910.

Typus : *Beccari* 82 (Keren in Erythraea).

Aethiopia : E.A.GS.SB. — Africa Tropica : Ke.

Nomina indigena : dechelá (prob. tigrinia : Mai-Ferrehat), diloyahen (somali : SB.).

Observatio. — Crescit in *Acacia Nefcsia, Combretum Hartmannianum* et aliis arboribus.

— var. **roseus** Fiori 1912.

Loranthus roseus Klotzsch ap. Peters 1862.

Typus : *Peters* (Delagoa-Bay).

Aethiopia : E. — Africa Tropica : Mo.

Observationes. — 1. — Forsan cum typo conjungendus et huius synonymon.

2. — Crescit in *Acacia Seyal* et *Anogeissus leiocarpa.*

— var. **subcuneifolius** Sprague 1910-11.

L. Dregei forma *subcuneifolius* Engler 1894 p.p. max.; *L. Dregei* forma *obtusifolia* Engler 1894 p.p.; *L. hirsutiflorus* Klotzsch ap. Peters 1862; *L. abyssinicus* Hochst. ex Lanza et Mattei 1910.

Loranthus oblongifolius Auct. non Mey. : Rich. 1847.

Typus : *Schimper* 768 (Gapdia in Tigre).

Aethiopia : E. — Africa Tropica : Ta.Za.Ny. Mo.Rh.

Observatio. — Crescit in *Cordyla africana.*

Loranthus dschallensis Engler 1895.

Typus : *Volkens* 1776 (lacus Dschalla ad Kilimandscharo).

Aethiopia : SB. — Africa Tropica : Ta.

Nomen indigenum : dilo-yahen (somali : SB.).

Observatio. — Crescit in *Acacia* spec.

Loranthus erythraeus Sprague 1910-11.

Syntypi : *Schweinfurth* et *Riva* 785, 1800 (Saganeiti).

Aethiopia : E.

Loranthus Faurotii Franchet 1887.

Plicosepalus Faurotii (Fr.) van Tiegh. 1894.

Typus : *Faurot* (Ins. Kamaran in S.-Arabia).

Aethiopia : N-SO.SB. — Extra Africam : S-Ar.

Loranthus Fischeri Engler 1894.

Syntypi : *Fischer* 130 (Massai), *Hildebrandt* 2494 (Taita).

Aethiopia : SB.SO. — Africa Tropica : Ke.Ug. N-Ta.

Nomina indigena : dillowyan, dilo-yahen (somali : SB.).

Observatio. — Crescit in *Cordia Gharaf* et *Boswellia Rivae.*

Loranthus Ghikae Schwfth. et Volk. 1897.

Typus : *Ghika-Comanesti* (M. Kaldesh in Burka).

Aethiopia : SO-H.SO.

Observatio. — Crescit in *Commiphora* spec.

Loranthus glabratus Sprague 1910-11.

Loranthus Fischeri var. *glabratus* Engler 1908.

Syntypi : *Ellenbeck* sine nr. et 1229 (Abu-el-Kasim, Luku).

Aethiopia : H. — Africa Tropica : N-Ta.

Loranthus globiferus Rich. 1847.

Loranthus congestus R. Br. ap. Salt 1814 nom. nud.; *L. penduli-*

florus Fenzl in Kotschy exs. 376; *L. Lingelsheimii* Pax 1907; *Tapinanthus globiferus* (Rich.) van Tiegh. 1895.

Typus : *Quartin-Dillon* (Mai-Gouagoua prope Adua).

Aethiopia : E.A.S. — Africa Tropica : Nu.Senr. Cor.Dar.O-Con.Ni. — Extra Africam : Ar.

Observationes. — 1. — Typi cum varietatibus saepissime confusi area aegre delimitanda.

2. — Crescit in *Acaciis, Commiphora africana* et *abyssinica, Olea chrysophylla, Rhamnus* spec.

— var. **salicifolius** Sprague 1910-11.

Loranthus linearifolius Hochst. in sched.; *L. Ostinii* Chiov. 1911; *L. globiferus* var. *Ostinii* Chiov. 1937.

Loranthus globiferus Auct. non Rich. : Schwfth. 1867, 1892 p.p., Pax 1907.

Syntypi : *Schimper* 888, 414, 567 (Amba-Harres, Gessat-Erar, Amba-Sea).

Aethiopia : E.A. — Africa Tropica : Dar.S-Ni.

Nomina indigena : dekala-mangi (tigrinia), takatellá (amhara : Godjam).

Observatio. — Crescit in *Acacia verugera* et aliis speciebus.

— var. **verrucosus** Sprague 1910-11.

Loranthus verrucosus Engler 1894; *Tapinanthus verrucosus* (Engl.) van Tiegh. 1895.

Loranthus globiferus Auct. non Rich. : Schwfth. 1896 p.p.

Syntypi : *Schweinfurth* 1003, 1485 (Dschur).

Aethiopia : E. — Africa Tropica : SuA.Ds.OuC. N-Ni. — Extra Africam : Ar.

Loranthus heteromorphus Rich. 1847.

L. Sennii Mattei ap. Lanza et Mattei 1910.

Loranthus regularis Auct. non Steud. : Schwfth. 1896 p.p.

Typus : *Quartin-Dillon* (Chire in W-Erythraea).

Aethiopia : E.A. — Africa Tropica : Senr.

Nomen indigenum : dicalé-sagilá (Bogos).

Observatio. — Crescit in *Acaciae* speciebus.

Loranthus Kelleri Engler 1908.

Typus : *Keller* 219 (Webi-Abdallah).

Aethiopia : SB.SO.

Nomen indigenum : dilo-yahen (somali : SB.).

Loranthus macrosolen Steud. ex Rich. 1847.
Septimetula macrosolen (Steud. ex Rich.) van Tiegh. 1895.
Syntypi : *Schimper* 529, 1288 (Schoata in Semien).
Aethiopia : A.
Observatio. — Crescit in *Acacia abyssinica,* interdum super *Viscum tuberculatum.*

Loranthus microphyllus Engler 1894.
Typus : *Fischer* I/311 (Ostafrika : prob. Massai).
Aethiopia : S-SO. — Africa Tropica : Ke.N-Ta.
Observatio. — Crescit in *Terminalia parvula.*

Loranthus nummularifolius Franchet (1887 nom. seminudum) ex Sprague 1910.
Tapinostemma nummularifolium (Fr.) van Tiegh. 1895.
Typus : *Révoil* (vallis Modié).
Aethiopia : N-SO.SB.
Nomina indigena : cabda, kabda (somali : Mijurtin), dilo-yahen (somali : SB.).

Loranthus panganensis Engler 1894.
Typus : *Stuhlmann* I/773 (Pangani).
Aethiopia : SB.SO. — Africa Tropica : Ke.N-Ta.
Nomen indigenum : dilo-yahen (somali : SB.).
Observatio. — Crescit in *Commiphora flabellulifera* et *C. truncata.*

Loranthus platyphyllus Hochst. ex Rich. 1847.
Schimperina platyphylla (Hochst.) van Tiegh. 1895; prob. *S. amoena* (Del.) van Tiegh. 1895 nom. nud.; *Loranthus amoenus* Del. in sched. Paris.
Typus : *Schimper* 1584 (Djeladjekanne prope flumen Tacazze).
Aethiopia : E.O-A. — Africa Tropica : Senr.
Observatio. — Crescit in *Anacardiacearum* specie quadam.

Loranthus ramulosus Sprague 1911.
Typus : *Whyte* (Mombassa versus Takanuga et Lamu).
Aethiopia : S-SO. — Africa Tropica : Ke.
Nomen indigenum : gado (somali : Transjuba).
Observatio. — Crescit in *Cordia Gharaf* et *Phyllanthus reticulatus.*

Loranthus regularis Steud. ex Schwfth. 1896.
Septimetula regularis (Steud.) van Tiegh. 1895; *Loranthus regularis* var. *Ellenbeckii* Engl. 1906 nom. nud.

Loranthus rufescens Auct. non DC. : Rich. 1847 (cum diagnosi).
Typus : *Schimper* 747 (Adua).
Aethiopia : E.A.S.GS. — Africa Tropica : Ke. Ta.O-Con.RU. — Extra Africam : Ar.
Nomina indigena : daqalla-zelloa, degala-zelloa (tigrinia, amhara, agau), tacattellá (amhara).
Observatio. — Crescit in *Acacia abyssinica* et *A. glaucophylla, Ficus Sycomorus* et *F. glumosa, Celastrus* spec., *Hagenia abyssinica, Nuxia dentata, Olea chrysophylla, Peucedanum fraxinifolium* et *Rhamnaceis* quibusdam.

— var. **pilosus** (Pax) Cuf. comb. nova.
Loranthus rufescens DC. var. *pilosus* Pax 1907.
Typus : *Rosen* (Gennet).
Aethiopia : S-S.
Observatio. — Crescit in *Ficus Sycomorus.*

Loranthus rhodanthus Chiov. 1932.
Typus : *Senni* 349 (Obe in Transjuba).
Aethiopia : S-SO.
Observatio. — Crescit in *Salvadora persica.*

Loranthus sagittifolius Sprague 1911.
Loranthus undulatus E. Mey. var. *sagittifolius* Engler 1895.
Syntypi : *Holst* 2173, 3103, 8835 (Usambara), *Volkens* 337 (Kilimandscharo).
Aethiopia : S-SO. — Africa Tropica : Ke.Ug.Ta.

Loranthus sarertaënsis Hutch. et Br. 1941.
Typus : *Gillett* 5194 (M. Sarerta).
Aethiopia : O-H.

Loranthus Scassellatii Chiov. 1916.
Typus : *Scassellati* et *Mazzocchi* 111 (Jamama ad flumen Webi-Gof).
Aethiopia : S-SO.

— var. **glabrescens** Balle ex Pichi Serm. 1951.
Typus : *Pichi Sermolli* 2492 (Gorgorà ad lacum Tana).
Aethiopia : A. — Africa Tropica : Ta.S-Rh.

Loranthus Schimperi Hochst. ex Rich. 1847.
Loranthus calycinus R. Br. ap. Salt 1814 nom. nud.; *Odontella Schimperi* (Hochst. ex Rich.) van Tiegh. 1895.

Typus : *Schimper* 158 (Schahagene prope Adua).
AETHIOPIA : E.A.H.SB. — EXTRA AFRICAM : Ar.
Nomen indigenum : drachalá (Keren).
Observatio. — Crescit in *Acacia etbaica* et *A. Lahai, Anogeissus leiocarpa, Cadia purpurea, Combretum trichanthum, Gymnosporia senegalensis, Dodonaea viscosa* et *Salix subserrata.*

— var. **parviflorus** HUTCH. et BR. 1941.
Syntypi : *Gillett* 3947, 4277, 4568, 5271 (Hargeisa, Simodi, Harar versus Kofajalo).
AETHIOPIA : SB.O-H.
Nomen indigenum : dilo-yahen (somali : SB.).

Loranthus Stefaninii CHIOV. 1916.
Loranthus somalensis CHIOV. 1916.
Typus : *Paoli* 342 (Torda).
AETHIOPIA : S-SO.
Observatio. — Crescit in *Cordia Gharaf.*

Loranthus Stuhlmannii ENGLER 1894.
Typus : *Stuhlmann* 4572 (Muanza).
Observatio. — Typus adhuc tantum e Ta. notus in Aethiopia desideratur.

— var. **somalensis** ENGLER ex SPRAGUE 1910-11.
Typus : *Keller* 218 (Webi-Abdallah).
AETHIOPIA : SO.

Loranthus Thomsonii SPRAGUE 1910.
Typus : *Thomson* 23 (Haud).
AETHIOPIA : SB.N-SO.
Nomen indigenum : dilo-yahen (somali : SB.).
Observatio. — Crescit in *Commiphora* spec.

Loranthus tschertscherensis PAX 1907.
Typus : *Rosen* (Kuni).
AETHIOPIA : N-H.

Loranthus ugogensis ENGLER 1894.
Loranthus tanaënsis ENGLER 1908.
Typus : *Stuhlmann* 342 (Ugogo).
AETHIOPIA : GS.H.S-SO. — AFRICA TROPICA : Ke.Ta.

— var. **ganocalyx** Chiov. 1939.
Typus : *Cufodontis* 602 (Javello).
Aethiopia : GS.

Loranthus Volkensii Engler 1894 (p. 110).
Loranthus sansibarensis et *L. Sadebeckii* Engler 1894 (p. 121, 122);*L. crassissimus* Engl. 1894 p.p.; *Odontella Volkensii* (Engl.) van Tiegh. 1895.
Typus : *Volkens* 183 (Tanga).
Aethiopia : S-SO. — Africa Tropica : Ke.Za. Ta.Mo.
Observatio. — Crescit in *Citrus medica* culta.

Loranthus woodfordioides Schwfth. ap. Höhnel 1892.
Ischnanthus woodfordioides (Schwfth.) van Tiegh. 1895; *Loranthus Ruspolii* Engl. in Engl.-Pr. 1897.
Loranthus Ehlersii Auct. non Schwfth. : Peter 1932 p.p.
Typus : *v. Höhnel* 39 (Guasso-Narok).
Aethiopia : GS.S. — Africa Tropica : Ke.Ug. Ta.RU.O-Con.
Observatio. — Crescit in *Syzygium guineense* var. *angustifolium*.

Loranthi species omnes.
Nomina indigena : gadú (somali : Uel-Dinc), daqalla, doqalla, dekala (tigrinia), kérud (tigre).

Korthalsella van Tiegh. 1896 (D. H. 2087).

Korthalsella Binii Pichi Serm. 1951.
Typus : *Pichi Sermolli* 2487 (Gorgorà ad lacum Tana).
Aethiopia : A.
Observatio. — Crescit in *Syzygium guineense*.

Korthalsella Opuntia (Thunb.) Merrill 1916.
Viscum Opuntia Thunb. 1784; *Bifaria abyssinica* van Tiegh. 1896.
Viscum taenioides Auct. non Comm. : Rich. 1847 p.p., Engler 1892 p.p.; *V. Schimperi* Auct. non Engl. : Sprague 1911 p.p.
Typus : *Thunberg* (Japonia).
Aethiopia : A. — Extra Africam : Réu.Mau. Mad.Him.Ind.IN.Phil.Jap.
Observationes. — 1. — Clarus Pichi Sermolli florentinus anno 1951 primus genus hoc in Africa recognovit.
2. — Crescit in *Syzygium guineense*.

Arceuthobium MARSCH. BIEB. 1819 (D. H. 2091).

Arceuthobium Juniperi-procerae CHIOV. 1911.

Syntypi : *Pappi* 1161, 2554 (M. Mamahot in Soyra et Amba-Debra).

AETHIOPIA : E. — AFRICA TROPICA : Ke.

Observatio. — Crescit in *Juniperus procera.*

Viscum L. 1753 (D. H. 2093).

Viscum nervosum HOCHST. ex RICH. 1847.

Typus : *Schimper* 211 (Schahagenne prope Adua).

AETHIOPIA : E.A.H. — AFRICA TROPICA : Ke.Ta. O-Con.

Nomina indigena : daqalla-sagla, dekala-sagla (tigrinia), mutu-konia (galla : Harar).

Observatio. — Crescit in *Acacia etbaica, Olea chrysophylla, Teclea nobilis,* interdum supra *Laranthum Acaciae.*

— var. **angustifolium** SPRAGUE 1911.

Viscum minutiflorum ENGL. et KRAUSE 1909.

Viscum triflorum AUCT. non DC. : MARTELLI 1886; *V. nervosum* AUCT. non HOCHST. ex RICH. : ENGLER 1892 p.p.

Typus : *Beccari* 62 (Keren).

AETHIOPIA : E.A. — AFRICA TROPICA : O-Con.Tho.

Viscum Schimperi ENGLER 1894.

Viscum taenioides AUCT. non COMM. : ENGLER 1892 p.p.

Typus : *Schimper* 667 (Harre-Schoa).

AETHIOPIA : A.SB.

Nomina indigena : dagalla-maughdeht (tigrinia), dilo-yahen (somali : SB.).

Observatio. — Crescit in *Acaciae* speciebus.

Viscum semiplanum (VAN TIEGH.) ENGLER in ENGL.-PR. 1897 (in clavi).

Aspidixia semiplana VAN TIEGH. 1896 nom. nud.

Viscum taenioides AUCT. non COMM. : SCHWFTH. et ASCH. 1867, SCHWFTH. 1896, ENGLER 1910; *V. Schimperi* AUCT. non ENGL. : SPRAGUE 1911 p.p.

Typus : *Schweinfurth* 1620 (Gheleb).

AETHIOPIA : E.

Observatio. — Crescit in *Acacia etbaica* et supra *Loranthum Acaciae.*

Viscum tuberculatum Rich. 1847.

Viscum Stuhlmannii Engler 1894; *V. Camporum* Engler et Krause 1909.

Typus : *Petit* (Choa).

Aethiopia : E.A.S.H.GS.SB. — Africa Tropica : Ke.Ug.Ta.RU.Rh.An.

Nomina indigena : daqalla-aule, degala-aule, degala-manki (tigrinia), dilo-yahen (somali : SB.).

Observationes. — 1. — Schweinfurth 1867 formas duo discrevit : *obovatifolia* et *obovato-oblongifolia,* quas vera negligere liceat.

2. — Crescit in *Ficus vasta, Ehretia silvatica, Gardenia lutea, Gymnosporia senegalensis, Olea chrysophylla, Rhus glaucescens* et *R. villosa, Tarchonanthus camphoratus, Terminalia Brownii, Ficus vasta,* interdum supra *Loranthum macrosolenem.*

Visci species omnes.

Nomen indigenum : daqalla (tigrinia).

ARISTOLOCHIACEAE.

Aristolochia L. 1753 (D. H. 2174).

Aristolochia benadiriana Fiori 1912.

prob. *Aristolochia Petersiana* Auct. non Kl. : Mattei 1908.

Typus : *Fiori* 17 (Giumbo in Benadir).

Aethiopia : S-SO.

Nomen indigenum : hengabai-suar (somali : Giumbo).

Observatio. — Huc referendum specimen *Macaluso* 173 ex eodem loco.

— var. **longilabia** Chiov. 1916.

Typus : *Paoli* 167 (Giumbo).

Aethiopia : S-SO.

Aristolochia bracteata Retz. 1789.

Aristolochia sempervirens Forsk. 1775, non L. 1763; *A. Kotschyi* Hochst. ex Rich. 1851; *A. abyssinica* Kl. 1859; *A. maurorum* var. *abyssinica* Schweth. 1862.

Typus : *König* (Madras in India orientali).

Aethiopia : GS.E.SF.SB.SO. — Africa Tropica : Nu.Senr.Cor.Ds.SuA.OuC.N-Ni.Ug.SO-Con. — Extra Africam Tropicam : Ar.Ind.Cey.

Nomina indigena : ghaga, löäja (arabice), boro, bore (somali : Buloburti et Mahaddei), ged-hurguma (somali : SB.), gerbaad (somali : Adel).

Observatio. — Species polymorpha hinc inde ad usum aphrodisiacum adhibetur.

— var. **altissima** (Terracc.) Almagià 1903.
Aristolochia bracteata forma *altissima* Terracc. 1894.
Typus : *Terracciano* 25 (Ins. Anfilah).
Aethiopia : E.

— var. **integrifolia** Beck 1888.
Typus : *Hardegger* et *Paulitschke* (lacus Haramaya prope Harar).
Aethiopia : H.

Aristolochia elegans Masters 1885.
Typus : *Bull* (cult., ex Brasilia).
Aethiopia : SO-GS.
Observatio. — Introducta et hinc inde culta ornamenti gratia.

Aristolochia rigida Duch. ap. DC. 1864.
Aristolochia somaliensis Oliv. in Hook. 1877.
Typus : *Boivin* (« e litore Africae orientalis »).
Aethiopia : SB.SO. — Africa Tropica : Ke.Ta. — Extra Africam : Ar.
Nomen indigenum : oues (somali : Warsangheli).

— var. **major** Wright 1909.
Aristolochia rigida Auct. non Duch. : Engler 1904.
Typus : *Hildebrandt* 873 (Lasgori prope M. Ahl).
Aethiopia : SB.

HYDNORACEAE.

Hydnora Thunb. 1775 (D. H. 2182).

Hydnora bogosensis Beccari (1871) 1886.
Typus : *Beccari* (Keren).
Aethiopia : E.
Observatio. — Crescit in radicibus *Acaciae* spec.

Hydnora Cornii Vaccaneo 1932.
Typus : *Guidotti* (Afgoi prope Mogadiscio).
Aethiopia : SO.
Nomen indigenum : leka (somali : Afgoi).
Observationes. — 1. — Crescit in radicibus *Abizziae Lebbek.*
2. — Cum aqua et cinere commixta ab incolis ad tingendum brunneum adhibetur.

Hydnora Hanningtonii Rendle 1896.
Typus : *Hannington* (prope lacum Victoria Nyanza in Uganda).
Aethiopia : H. — Africa Tropica : Ug.
Observatio. — Rhizomata sunt edulia.

Hydnora Johannis Beccari 1871.
Hydnora abyssinica A. Br. (ap. Schwfth. 1867 nom nud.) ex Decne. 1873.
H. africana Auct. non Thunb. : Oliv. ap. James 1888, Engler 1910.
Typus : *Beccari* 170 (Sciotel ad M. Zedamba).
Aethiopia : E.A.GS.S-S.H.SB.SO. — Africa Tropica : Ke.Ta.RU.
Nomina indigena : lecche, likki (somali).
Observationes. — 1. — Crescit in radicibus *Kigeliae aethiopicae* et *Acaciae glaucophyllae.*
2. — Ad usum adstringentem et coriarium adhibetur et a pastoribus pueris comeditur.

— var. **gigantea** Vaccaneo 1934.
Hydnora gigantea Chiov. 1916.
Typus : *v. Höhnel* (inter lacus Rudolphi et Stephaniae).
Aethiopia : GS.SO.
Nomina indigena : lekke, likke, lipti (somali).
Observatio. — Edulis.

— var. **gigantea** forma **trimera** Vaccaneo 1934.
Hydnora gigantea var. *trimera* Chiov. 1916.
Syntypi : *Paoli* 980, 1035 p.p. (inter Berdale, Lugh et El-Ualac).
Aethiopia : S-SO.
Nomen indigenum : lecche (somali).

Hydnora Ruspolii Chiov. (1916 in clavi) 1917.
Hydnora abyssinica Auct. non. A. Br. : Engler 1902 p.p.

Typus : *Ruspoli* et *Riva* 1091 p.p. (Marro Umberto I. ad flumen Ganana [Djuba]).

AETHIOPIA : S-SO.

Observationes. — 1. — Crescit in radicibus *Kigeliae africanae*. 2. — Fructus sunt edules.

POLYGONACEAE.

Emex NECK. 1790 (D. H. 2194).

Emex spinosa (L.) CAMPD. 1819.

Rumex spinosus L. 1753; *R. glaber* FORSK. 1775; *Vibo spinosus* (L.) MOENCH 1794.

Typus : ex Insula Creta.

AETHIOPIA : E. — EXTRA AFRICAM TROPICAM : Ar.Can.N-Af.Aeg.Syr.Ana.Per.S-Eu., illata in S-Am.

Nomen indigenum : ciomerahat (Uogherico).

Rumex L. 1753 (D. H. 2195).

(Clarus monographus vindobonensis K. H. RECHINGER revisionem specierum africanarum parans, genus hoc benevole elaborandum curavit.)

Rumex abyssinicus JACQ. 1776.

Rumex arifolius L. F. 1781, non aliorum.

Typus : cultus a JACQUINIO in Horto Botanico Vindobonensi e seminibus ex Abyssinia.

AETHIOPIA : E.A.S.GS.H. — AFRICA TROPICA : Dar.S-SuA.Ug.Ke.Ta.RU.Con.Ny.N-Rh.An.Mu.Ca.N-Ni.Tho. — EXTRA AFRICAM TROPICAM : Mad.Réu.

Nomina indigena : makmako, mocmocó, mohoho, mokmoko, moqmoqo (tigrinia et amhara), magmagnó, måqmåqo (saho).

Observatio. — Speciei huius polymorphae radices ad butyrum luteum tingendum et pro medicamento laxante adhibentur.

— var. **angustisectus** ENGLER 1892.

Typus : *Schimper* 1527 (Debra-Tabor in Beghemeder).

AETHIOPIA : A. — AFRICA TROPICA : Ke.N-Ta.RU. O-Con.

— var. **calystegifolius** RECH. F. var. nova ined.

Typus : *Pappi* 237 (Adi-Ganà).

AETHIOPIA : E.

— var. **Mannii** ENGL. 1892.

Typus : *Mann* 1217 (Mons Camerun).

AETHIOPIA : GS. — AFRICA TROPICA : N-Ta.SO-Ni.

— var. **retrorsilobatus** Rech. f. var. nova ined.
Typus : *Chiovenda* 1886 (Asosô in Dembeà).
Aethiopia : A.

— var. **Schimperi** Asch. et Schwfth. 1867.
Rumex Schimperi Meissn. ap DC. 1856.
Rumex abyssinicus Auct. non Jacq. : auct. Florae afric. pro parte.
Typus : *Schimper* 514 (Abyssinia sine loco).
Aethiopia : E.A.GS. — Africa Tropica : Ta.An.

Rumex Bequaertii De Wild. 1929.
Rumex camptodon Rech. f. 1932.
Rumex nepalensis Auct. non Spr. : Fiori 1916, Fries 1924, Hutch. et Br. 1941, et aliorum auct. Florae afric. p.p.; *R. Steudelii* Auct. non Hochst. : Pichi Sermolli 1951, et auct. Florae afric. p.p.
Typus : *Bequaert* 5905 (Mukule).
Aethiopia : E.A.GS.H.S. — Africa Tropica : Ke.Ta.Ug.RU.Con.Tr.SO-Ni.Dar. — Extra Africam Tropicam : Mad.
Nomen indigenum : arab-sare (somali : H.).

— var. **Quarrei** Robyns 1948.
Rumex Quarrei De Wild. 1929.
Syntypi : *Quarré* 269, 845 (Kafubu).
Aethiopia : GS. — Africa Tropica : Ke.Ug.Ta. Con.Ny.An.

Rumex Ellenbeckii Dammer 1905.
Typus : *Ellenbeck* 1686 (Insula Tuluguto in lacu Zuai).
Aethiopia : E.SO-GS.

Rumex hararensis Dammer 1905.
Typus : *Ellenbeck* sine nr. (Harar).
Aethiopia : H.

Rumex nervosus Vahl 1790.
Rumex persicarioides Forsk. 1775, non L. 1753; *R. alismaefolius* Fres. 1838.
Typus : *Forskal* (Hadie in Yemen).
Aethiopia : E.A.GS.S.H. — Africa Tropica : Ke.N-Ta. — Extra Africam Tropicam : Ar.
Nomina indigena : öthrob (arabice), ambacció, ambadjo, ambatcho, ambatscho, amboiatchio, imbadjo, mbatcho, mbokakla (radix), umbacció (amhara), asot, hachot, hahot, hahote, hakhot, harkott, hehhot (tigrinia), az-san, hahhott (tigre).

Observatio. — Radix ad butyrum depurandum adhibetur.

Rumex Steudelii Hochst. ex Rich. 1851.

Rumex Steudelianus Meissn. ap DC. 1856.

Rumex nepalensis Auct. non Spr. : auct. Florae aethiop. et afric. p.p.

Syntypi : *Schimper* 380, 933 (M. Scholoda, Gennia).

Aethiopia : E.A.S.H? — Extra Africam Tropicam : S-Af.Ar.

Nomina indigena : toult, tult, tutt (amhara), chambobata, schambobata, schombabaeta, schombaboeta, schumbabata, sciombabaeta, sciombabota, sciombobata, sciumbabata (tigrinia), sangalakhti, sanghelachti (tigre).

Observationes. — 1. — *R. nepalensis* veridicus in Africa adhuc incertus.

2. — Radix in colicam mulorum adhibetur.

— var. **cordifolius** Rich. 1851.

Rumex Steudelianus var. *cordifolius* (Rich.) Meissn. ap. DC. 1856.

Typus : *Petit* (Ouogerate).

Aethiopia : E.

Observatio. — Haec varietas dubia permanet, sed characteribus notis ad *R. nepalensem* verum accedit.

Rumex vesicarius L. 1753.

Typus : ex Africa boreali.

Aethiopia : E?SB. — Africa Tropica : Nu. — Extra Africam Tropicam : Can.N-Af.Ar.Sin.Syr.SO-Eu.S-Per. usque ad NW-Ind.Hel.

Observatio. — In Africa trop. probabiliter advenus nec indigenus.

Polygonum L. 1753 (D. H. 2201).

Polygonum acuminatum Kunth ap. H. B. K. 1817.

Polygonum Poiretii Meissn. ap DC. 1856.

Typus : *Humboldt* (Colombia).

Aethiopia : GS.H. — Africa Tropica : Ds.Ta. Con.Mo.Ny.Tr.An.Gab.Ni.SL. — Extra Africam Tropicam : S-Af.Mad.Mas.Hel.Am.trop.

Polygonum akakiense Cuf. 1947.

Polygonum Persicaria Auct. non L. : Cuf. 1943.

Typus : *Bieber*, anno 1904 (flumen Akaki).
AETHIOPIA : S-S.

Polygonum amphibium L. 1753.
Polygonum amphibium var. *aquaticum* et var. *terrestre* LEERS 1775; *P. amphibium* var. *natans* MOENCH 1777; *P. amphibium* var. γ RICH. 1851.
Typus : ex Europa.
AETHIOPIA : E.A.S. — EXTRA AFRICAM TROPICAM : Tr.S-Af.Eu.As.Ar.N-Am.
Observatio. — Varietates formas oecologicas tantum sistunt.

Polygonum arussense CHIOV. 1912.
Typus : *Negri* 730 (ad pontem supra flumen Hauasch, quo itur ad lacum Zuai).
AETHIOPIA : S-S.

Polygonum aviculare L. 1753.
Polygonum aviculare var. *diffusum* MEISSN. ap. DC. 1856.
Typus : ex Europae cultis et ruderatis.
AETHIOPIA : E.A. — EXTRA AFRICAM TROPICAM : Tr.S-Af.N-Af.Eu. et As.temp., nunc fere cosmopolitum.
Nomina indigena : enfafa-dehl, enfalo-dehl (tigrinia).
Observatio. — Saepe cum *P. plebeio* R. BR. commutatum.

Polygonum barbatum L. 1753.
Polygonum barbatum var. *vulgare* MEISSN ap. DC. 1856; prob. *P. adoënse* GANDOGER 1919.
Typus : e China.
AETHIOPIA : E.A.H. — AFRICA TROPICA : Senr.Gh. Dar.Ta.Ny.An.Con.Ca.N-Ni.GuiF. — EXTRA AFRICAM TROPICAM : S-Af.Soc.As.tr. usque ad Jap.NG.Au.
Nomina indigena : cirhouerba, ssirhucrba (tigrinia), gumamillá, dschauanja-engeda, jaouanya-engueda (amhara).
Observatio. — Fide HUTCHINSON et DALZIEL deest in W-Af.

Polygonum equisetiforme SIBTH. et SM. 1806.
Typus : *Sibthorp* (Insula Creta).
AETHIOPIA : E. — EXTRA AFRICAM TROPICAM : N-Af.S-Eu.Ana.Syr.Pal.Mes.N-Per.Afg.
Observatio. — In Africa trop. vix indigenum, sine dubio advenum.

Polygonum glabrum WILLD. 1799.
Polygonum Hippopotami EHRENB. ex MEISSN. ap DC. 1856.

Polygonum nodosum Auct. non Pers. : Schwfth. 1896, Engler 1910, Cuf. 1943.

Typus : ex India orientali.

Aethiopia : E.A.S.S-SO. — Africa Tropica : Nu.Senr.Cor.S-SuA.Dar.Ds.OuC.Ta.O-Con. — Extra Africam Tropicam : S-Af.Com.Soc.Ar.Afg.Ind.Cey.Chi.Pol. Am.tr.

Polygonum lapathifolium L. 1753.

Polygonum lanigerum R. Br. 1810; *P. lanigerum* var. *africanum* Meissn. ap. DC. 1856; *P. lapathifolium* ssp. *punctatum* Schust. var. *vestitum* Schust. 1908.

Polygonum nodosum Auct. non. Pers. : Engler 1892.

Typus : e Gallia.

Aethiopia : E.S-SO. — Africa Tropica : Gh.Bo. Ke.Ug.Ta.Za.Con.Ny.Mo.S-Rh.Tr.An.Ni.IC.SL.GuiF.Gam.SuF. — Extra Africam Tropicam : S-Af.N-Af.Eu.As. usque ad Jap.Phil.N-Au, advenum in N-Am.

Observatio. — Species valde polymorpha porro investiganda, cuius area et variabilitas adhuc pessime notae, probabiliter subdivisione eget.

Polygonum nepalense Meissn. 1826.

Polygonum nepalense var. *glabrum* Meissn. ap. Wall. 1832; *P. nepalense* var. *simense* Asch. ap. Schwfth. 1867; *P. punctatum* Ham. ex Don var. *alatum* Don 1825; *P. alatum* Ham. ex Spr. 1827; *P. alatum* var. *nepalense* Hook. 1886.

Typus : *Wallich* 1701 p.p. (Nepalia).

Aethiopia : E.A.S.GS. — Africa Tropica : Ke. Ug.Ta.RU.O-Con.Ny.Tr.FP. — Extra Africam Tropicam : S-Af.Mad.Afg.Ind.Cey.IN.Phil.Chi.Jap.NG.

— var. **scabridum** Meissn. ap. Wall. 1832.

Syntypi : *Wight* 1, *Wallich* 1701 p.p. (Himalaya, India orientalis).

Aethiopia : E. (*Schimper* 303). — Africa Tropica : Ny.Ca. — Extra Africam Tropicam : Him.Ind.

Polygonum plebeium R. Br. 1810.

Polygonum herniarioides Del. 1813; *P. Roxburghii* et *P. Perrottetii* Meissn. ap. DC. 1856.

Polygonum aviculare Auct. non L. : Rich. 1851 et aliorum auct. Florae aethiop.

Typus : *Rob. Brown* (Port Jackson).

Aethiopia : E.A. — Africa Tropica : SuA.SO-Con.Ny.Mo.S-Rh.An.SuF.Senl. — Extra Africam Tropicam : SW-Af.S-Af.Aeg.Pal.Syr.S-Eu.Mad.Afg.Ind. usque ad Chi.Fo.Phil.Au.

Polygonum pulchrum Blume 1825.

Polygonum tomentosum Willd. 1799, non Schrank 1789; *P. tomentosum* var. *sericeo-velutinum* Meissn. ap. Wall. 1832; *P. setulosum* Rich. 1851.

Typus : *Blume* (Batavia).

Aethiopia : E.A.S.H. — Africa Tropica : Ke.Ug.Ta.Con.Mo.Ny.Rh.Tr.An.Senr.SuA.NN.Gh.Cor.Ni.Dah. — Extra Africam Tropicam : SW-Af.S-Af.N-Af.Ind. Cey.IN.Phil.

Nomen indigenum : ba-waha-lay (amhara).

Polygonum salicifolium Brouss. ex Willd. 1809.

Polygonum serrulatum Lag. 1816; *P. serrulatum* var. *salicifolium* Boiss. 1879; *P. abyssinicum* Rich. 1851.

Polygonum scabrum Auct. non Moench : Engler 1906.

Typus : *Broussonet* (Insula Tenerifa).

Aethiopia : E.S.H. — Africa Tropica : fere ubique. — Extra Africam Tropicam : S-Af.N-Af. Can.Mda.Az.Med.Com.Mad.Ar.Syr.Mes.usque ad As.tr.Au.NS. Am.tr.

Nomina indigena : lequareba, schumbabata-mai (tigrinia).

Polygonum Schimperi Vatke (ex Engl. 1892 nom. nud.) ex Baker et Wr. 1909.

Typus : *Schimper* 1542 (Gaffat).

Aethiopia : A.

Observatio. — Species male cognita, nullo loco rite descripta.

Polygonum senegalense Meissn. 1826.

Polygonum macrochaeton Fres. 1838; prob. *P. tumidum* Del. 1813

Typus : *Perrottet* (Senegal).

Aethiopia : E.A.S.H.GS.SB.SO. — Africa Tropica : Ke.Ta. et alibi fere ubique — Extra Africam Tropicam : SW-Af.Aeg.Réu.Mad,As.tr.Hel.

Nomina indigena : lequareba, schumbabata-mai (tigrinia), guma-millá (amhara).

— var. **semilanigerum** Chiov. 1929.

Typus : *Stefanini* et *Puccioni* 179 (Berdale ad flumen Scebeli).

Aethiopia : S-SO.

Polygonum Tanganikae Schuster 1908.

Syntypi : *Böhm* 74, *Storms* (Karema), *A. F. W. Schimper* B/48 (Congo).

Aethiopia : SO. (Webi-Abdallah, *Keller* 228). — Africa Tropica : Ta.Con.

Observatio : Species male cognita.

Oxygonum Burch. 1822 (D.H.2204).

Oxygonum atriplicifolium (Meissn.) Martelli 1886.

Polygonum atriplicifolium Wall. 1828 nom. nud.; *Ceratogonum atriplicifolium* Meissn. ap. Wall. 1832; *Polygonum Owenii* Bojer 1835.

Typus : cultus in Horto Botanico Calcuttensi, prob. ex Africa.

Observatio. — Typus speciei polymorphae e Ke.Ta.Mo.notus, in Aethiopia adhuc nondum repertus videtur.

— var. **sinuatum** Baker ap. Bak. et Wr. 1909.

Polygonum sinuatum R. Br. ap. Salt 1814 nom. nud., non Royle ex Meissn. ap. DC. 1856; *Ceratogonum sinuatum* Hochst. et Steud. ex Meissn. ap. DC. 1856; *Oxygonum sinuatum* (H. et St.) Dammer in Engl.-Pr. 1893; *Ceratogonum cordofanum* Meissn. ap. DC. 1856; *Diplopyramis aethiopica* Welw. ex Hiern 1900.

Ceratogonum atriplicifolium Auct. non Meissn. : Rich. 1851; *Oxygonum atriplicifolium* Auct. non Mart. : auct. Florae aethiop. saltem p.p. max.

Typus : *Schimper* 264 (Memsah prope Adua).

Aethiopia : E.A.S.H.GS.SB.SO. — Africa Tropica : Nu.Senr.Cor.SuA.NiF.SuF.Ke.Ta.Za.RU.O-Con.Tr.An. — Extra Africam Tropicam : SW-Af.S-Af.Ar.

Nomina indigena : ceu-merakat, dascian-mirahat, dschau-mirahat, gagume, meracut (tigrinia et tigre), chachito (prob. agau), gallaschingua, gallascingua (bilin).

Observatio. — Folia eduntur.

— var. **trichocarpum** Chiov. 1932

Syntypi : *Senni* 599, *Gorini* 385 (Mogadiscio, Gobuin, Chisimaio)

Aethiopia : SO.

Oxygonum salicifolium Dammer ap. Engler 1895.
Syntypi : *Holst* 3186, *Stuhlmann* 3333, *Fischer* 551 (litora opposita Zanzibar, Ihangiro, Kahegi).
Aethiopia : prob. S-SO. — Africa Tropica : Ke. Ta.O-Con.

Oxygonum somalense Chiov. 1916.
Typus : *Paoli* 1323 (Magdesce versus Giabadgeh ad flumen Uebi-Scebeli).
Aethiopia : SO.

— var. **pterocarpum** Chiov. 1932.
Syntypi : *Gorini* 72, *Senni* 326 (Afmadù, Uamo-Ido).
Aethiopia : S-SO. (Transjuba).

Antigonon Endl. 1837 (D. H. 2205).

Antigonon leptopus Hook. et Arn. 1841.
Typus : *Lay* et *Collie* (Oaxaca in Mexico).
Aethiopia : SO. — Africa Tropica : Ta.Con. et sine dubio alibi quoque.
Observatio. — Species in Am. trop. indigena, in Africa culta tantum et interdum efferata.

Polygonacearum species indeterminata, sub nomine « *Polygonum frutescens* » (fide Roth ap. Harris 1844).
Nomen indigenum : umboatoo (amhara : Shoa).

CHENOPODIACEAE.

Beta L. 1753 (D. H. 2221).

Beta vulgaris L. 1753.
Typus : litora Angliae et Belgii.
Aethiopia : E.
Observatio. — Speciei ab Az.Can.W-Eu.Med. usque ad NW-Ind. diffusae hic illic in Af. colitur var. *Cicla* L. 1753.

Chenopodium L. 1753 (D. H. 2223).

Chenopodium album L. 1753.
Typus : ex agris Europae.
Aethiopia : E.A.S.H.SB.SO. — Africa Tropica : Cor.Ke.Ug.Ta.Za.An.MC.Tho. — Extra Africam Tro-

PICAM : SW-Af.S-Af.N-Af.Aeg.Ar.Sin.usque ad NW-Ind. hodie fere cosmopolitum.

Nomina indigena : amedmadho, amedmadoo (amhara).

Observatio. — Verosimiliter in W-Him. indigenum.

Chenopodium ambrosioides L. 1753.

Chenopodium anthelminticum L. 1753; *C. ambrosioides* var. *anthelminticum* A. GRAY 1867.

Typus : ex Mexico.

AETHIOPIA : E.S. — AFRICA TROPICA : Ta.Con.Ny. Mo.Rh.Tr.An.Gab.S-Ni.Pri.Tho.Dah. — EXTRA AFRICAM TROPICAM : SW-Af.S-Af.N-Af.Mau.Réu.Mad.Asc.Mak.S-Eu. et in multis regionibus calidioribus.

Nomen indigenum : gimmy (amhara).

Observatio. — Species in Am. trop. indigena propter vires anthelminticas saepe culta et haud raro efferata.

Chenopodium Botrys L. 1753.

Typus : ex arenosis Europae australis.

AETHIOPIA : E.A.H.GS. — AFRICA TROPICA : Ke. Ug.Ta.Ny.Tr.An. — EXTRA AFRICAM TROPICAM : S-Af. N-Af.Med.Ar.W-As. usque ad Ind.S-Sib.N-Am.

Observatio. — Species in Med. indigena nunc, regionibus frigidis exceptis, fere cosmopolita.

Chenopodium fasciculosum AELLEN 1928.

prob. *Chenopodium hybridum* AUCT. non L. : ENGLER 1902.

Syntypi : *E. A. Mearns* 672, 707 (Lacus Naivasha in Kenya).

AETHIOPIA : S?GS. — AFRICA TROPICA : Ke.

Chenopodium murale L. 1753.

Chenopodium triangulare FORSK. 1775.

Typus : ex Europa.

AETHIOPIA : E.A.S.SB.SO.H? — AFRICA TROPICA : Nu.Senr.Dar.NiF.Ke.Ug.Ta.O-Con.Tr.An.Senl. — EXTRA AFRICAM TROPICAM : SW-Af.S-Af.N-Af.Mau.Mad.Soc. Ar. et hodie fere cosmopolitum.

Nomina indigena : mocmoco, moqmoqo (Acrur), hamli-gewwo, hammat-mado, zogar-hamli-gewo (tigrinia), aiyu-guri (somali : SB.).

Observatio. — Species valde polymorpha in orbe vetere indigena.

— var. **Schimperi** ASCH. ap. SCHWFTH. 1867.

Typus : *Schimper* 86 (Debra Eski in Semien).

Aethiopia : O-A.

Chenopodium opulifolium Schrad. (ex Koch et Ziz 1814 nom. nud.) ex DC. 1815.

Chenopodium viride Lois. 1806, non L. 1753; C. erosum Bast. 1814, non R. Br. 1810.

Syntypi : *Koch* (Speier et Dürckheim in ditione Rhenana).

Aethiopia : E.A.S.H.GS.SB.SO. — Africa Tropica : Ke.Ug.Ta.Za.RU.Con.Tr.An. — Extra Africam Tropicam : SW-Af.S-Af.N-Af.Mda.Med.S-Eu.Ar.Pal.Syr. Ana. usque ad Sib., caeterum in multis regionibus advena.

Nomen indigenum : hamli-kubo (tigrinia et forsan amhara).

Observatio. — Speciei summopere variabilis et fere cosmopolitae in Aethiopia praecipue ssp. *orientalis* Murr 1902 diffusa videtur.

Chenopodium polyspermum L. 1753.

Typus : ex Europae cultis.

Aethiopia : S. — Extra Africam Tropicam : Tr.S-Af.Eu.As.N-Am.

Observatio. — Species in Eurasia indigena nuper in Af. immigrata.

Chenopodium procerum Hochst. ex Moq. in DC. 1849.

Chenopodium Botrys var. *procera* C. B. Clarke 1909.

Syntypi : *Schimper* 882, 1506 (Adua).

Aethiopia : E.A.S.SB. — Africa Tropica : Ta. RU.Con.Ny.Rh.An.

Nomina indigena : senachnach. senakhna. senakhnakh. ssinhakh. ssinnehhahh (tigrinia), kurhiyi (somali : SB.).

Chenopodium Schraderianum Roem. et Sch. 1820.

Chenopodium foetidum Schrad. 1808, non Lam. 1778; *Ambrina foetida* (Schrad.) Moq. 1840.

Typus : cultus e seminibus e Germania meridionali.

Aethiopia : E.A.S.H.GS.SF. — Africa Tropica : Dar.Ke.Ug.Ta.RU.Con.N-Rh.An. — Extra Africam Tropicam : S-Af.SW-Af.Ar, immigratum et efferatum in Eu.As.Am.

Nomina indigena : senachnach. senakhna. senakhnakh. ssinhakh. ssinnehhahh (tigrinia), senehniot (Asmara).

Observatio. — Patria incerta sed vix in Eu. indigenum.

Chenopodium strictum Roth 1821.

Typus : *Heyne* (India orientalis).

Observatio. — Species quam maxime variabilis in hemisphaera

boreali diffusissima porro investiganda, cuius forma typica in Af. deesse videtur.

— ssp. **striatum** (Hayek) Aellen et Iljin 1936.

Chenopodium album var. *striatum* Krasan 1894; *C. striatum* Murr 1896; *C. album* ssp. *striatum* Hayek 1908.

Typus : *Krasan* (prope urbem Graz in Styria).

Observatio. — In hemisphaera boreali diffusum, in Africa tantum varietas sequens.

— ssp. **striatum** var. **pseudo-Borbasii** (Hayek) Cuf. comb. nova.

Chenopodium pseudo-Borbasii Murr 1901; *C. album* var. *striatum* forma *pseudo-Borbasii* Beck in Rchb. 1907; *C. album* ssp. *striatum* var. *pseudoborbasii* Hayek 1908; *C. striatum* var. *pseudo-Borbasii* (Hay.) Gräbner 1913.

Chenopodium album Auct. non. L. : Asch. ap. Schwfth. 1867 p.p., Engler 1892 p.p.

Syntypi : *Murr* (e Styria merid., Austria super., Tyrolia merid.), *Hellweger* in *Doerfler* Herb. Norm. 3223 (Brixen).

Aethiopia : A. (Gondar, *Steudner* 636; fide Murr 1902). — Extra Africam Tropicam : N-Af.Eu.As.N-Am.C-Am.

Chenopodium suberifolium Murr 1904.

Typus : *Holst* 8926 (Usambara).

Aethiopia : H. — Africa Tropica : Ta.

Chenopodium Ulbrichii Aellen 1930.

Syntypi : *Petit* (Choa), *Schimper* 71 (Debra-Eski in Semien).

Aethiopia : S.A.

Chenopodii species indeterminata (fide Hildebrandt ap. Schweinfurth 1893).

Nomen indigenum : teduded (tigre).

Atriplex L. 1753 (D. H. 2229).

Atriplex coriacea Forsk. 1775.

Obione coriacea (Forsk.) Moq. 1840; *Atriplex ocymifolium* Viv. 1831; *Obione coriacea* var. *ocymifolia* Moq. ap. DC. 1849.

Typus : *Forskal* (Alexandria in Aegypto).

Aethiopia : E. (Assab; fide Beccari 1881). — Extra Africam Tropicam : Aeg.Sin.Syr.

Atriplex farinosa Forsk. 1775.
Atriplex hastata Forsk. 1775, non L. 1753.
Typus : *Forskal* (in planitie maritima Arabiae).
Aethiopia : E.SB.SO. — Africa Tropica : Nu. Ke. — Extra Africam Tropicam : N-Af.Aeg.Sin.Ar.
Nomina indigena : osfai (arabice), intikar (somali : SB.).

Atriplex Griffithii Moq. in DC. 1849.
Atriplex Stocksii Boiss. 1853; *A. persica* Boiss. 1853; *A. Griffithii* var. *Stocksii* Boiss. 1879.
Typus : *Griffith* 1751 (Afghanistan).
Aethiopia : SO. (Merca, *Macaluso* 37; fide Mattei 1908). — Extra Africam : Soc.Per.Afg.Bel.Ind.
Nomen indigenum : ghed-ad (somali : Merca).

Atriplex Pumilio R. Br. 1810.
Atriplex prostrata R. Br. 1810, non Boucher 1803.
Typus : *R. Brown* (Australia meridionalis).
Aethiopia : E.
Observatio. — In Au. indigena, in Aethiopia sicut multis regionibus ad usum pabularem culta.

Atriplex vesicaria Hew. ex Benth. 1870.
Syntypi : *Cunningham, F. v. Mueller* (New-South-Wales). *Sullivan* (S-Australia).
Aethiopia : E.
Observatio. — In Au. indigena, in Af. sicut alibi ad usum pabularem saepe culta.

Atriplex aff. *A. Halimus* L. (fide Gilliland 1952).
Nomen indigenum : habu (somali : SB.).

Halopeplis Bunge 1856 (D. H. 2249).

Halopeplis perfoliata (Forsk.) Bunge ex Schwfth. 1867.
Salicornia perfoliata Forsk. 1775; *Halostachys perfoliata* (Forsk.) Moq. 1849.
Syntypi : *Forskal* (Djidda et Ghomfoda in Arabia).
Aethiopia : E. — Africa Tropica : Nu. — Extra Africam Tropicam : Aeg.Ar.

Halocnemum Marsch. Bieb. 1819 (D. H. 2253).

Halocnemum strobilaceum (Pall.) M. B. 1819.
Salicornia strobilacea Pall. 1771; *S. cruciata* Forsk. 1775;

Halopeplis strobilacea (Pall.) Ces.Pass.Gib. 1874.

Typus : *Pallas* (ad lacum Inderskoje in regione Caspica).

Aethiopia : E. — Extra Africam Tropicam : N-Af.S-Eu.O-Eu.Ar.W-As. usque ad C-As.

Nomen indigenum : sabta (arabice in Aeg.).

Observatio. — Quoad Aethiopiam accuratius observandum.

Arthrocnemum Moq. 1840 (D. H. 2255).

Arthrocnemum glaucum (Del.) Ung.-Sternb. 1874.

Salicornia virginica Forsk. 1775, non *S. virginia* L. 1753; *S. glauca* Del. 1813; *S. macrostachya* Moric. 1820; *Arthrocnemum fruticosum* var. *glaucum* et var. *macrostachyum* Moq. 1840.

Arthrocnemum fruticosum Auct. non Moq. : Balsamo 1891, Bak. et Cl. 1909, Chiov. 1929.

Typus : *Delile* (Aegyptus).

Aethiopia : E.SB.SO. — Africa Tropica : Nu. — Extra Africam Tropicam : N-Af.Aeg.CV.Can.S-Eu. Ana.Syr.Pal.Ar.

Observatio. — In An. et SW-Af. cum proxima specie commutatum.

Arthrocnemum indicum Moq. 1840.

Salicornia indica Wight 1843-45, non R. Br. 1810.

Typus : *Roettler* (Tranquebar).

Aethiopia : S-SO. — Africa Tropica : Ta.Za. An. — Extra Africam Tropicam : S-Af.SW-Af.Mad. et litora Oceani Indici ab Ind. usque ad Au.Tas.NS.

Salicornia L. 1753 (D. H. 2257).

Salicornia fruticosa L. 1762.

Salicornia europaea var. *fruticosa* L. 1753.

Salicornia europaea Auct. non L. : Forsk. 1775; *S. herbacea* Auct. non L. : Terracc. 1894, Bak. et Cl. 1909 p.p.

Typus : ex Europae maritimis.

Aethiopia : E. — Extra Africam Tropicam : S-Af.N-Af.Ar.Sin. et fere cosmopolita ad litora marium.

Observatio. — Fide cl. Ulbrich 1934 *S. herbacea* L. veridica deest in Af. trop.

Suaeda Forsk. 1775 (D. H. 2261).

Suaeda baccata Forsk. 1775.

Salsola baccata (Forsk.) Poir. 1806; *Schanginia baccata* (Forsk.) Moq. 1840.

Typus : *Forskal* (Alexandria in Aeg.).

Aethiopia : E. — Extra Africam Tropicam : Aeg.Ar.Sin.Pal.

Nomen indigenum : mullaeah (arabice in Aeg.).

Suaeda fruticosa (L.) Forsk. 1775.

Chenopodium fruticosum L. 1753; *Salsola fruticosa* L. 1763; *Lerchea maritima* var. *fruticosa* O. Kuntze 1891.

prob. *Salsola altissima* Auct. non. L. : Engler 1910.

Typus : ex Hispaniae et Galliae maritimis.

Aethiopia : E.SF.SB.SO. — Africa Tropica : Nu.An.Senl. — Extra Africam Tropicam : S-Af.SW-Af.Can.Mda.N-Af.W-Eu.S-Eu.Med.Aeg.Soc.Ar.Sin.Per. usque ad Ind.Au.N-Am.

Nomina indigena : delluc, döluk (arabice in SO.), adun, hadun (somali : Rahantin), assah, assal (somali : Mogadiscio), hodon, hurun (somali : SB.), durran, magad (somali : cinis plantae).

Oberservatio. — Cinis (« magad ») ad usum technicum et cosmeticum adhibetur.

Suaeda monoica Forsk. 1775.

Suaeda Asal Forsk. 1775; *Salsola monoica* (Forsk.) Poir. 1806.

Suaeda fruticosa Auct. non Forsk. : Courbon 1862.

Syntypi : *Forskal* (Alexandria in Aeg. et Lohaja in Yemen).

Aethiopia : E.H.SF.SB.SO. — Africa Tropica : Ke.Ta.Za.Nu.Cor.Senl. — Extra Africam Tropicam : N-Af.Aeg.Soc.Ar.Sin.Pal. usque ad Ind.Cey.

Nomina indigena : asal, assal (arabice), höttum (tigre), diluk (somali : Mogadiscio).

Suaeda Paulayana Vierh. 1903.

Typus : *Paulay,* anno 1899 (Abdelkuri).

Aethiopia : N-SO. — Extra Africam : Abdelkuri, Soc.

Suaeda Schimperi (Moq.) Martelli 1888.

Sevada Schimperi Moq. 1849; *Suaeda vermiculata* Forsk. var. *puberula* C. B. Clarke 1909.

Typus : *Schimper* 867 p.p. (Djidda in Arabia).
AETHIOPIA : E. — AFRICA TROPICA : Nu. — EXTRA AFRICAM TROPICAM : Ar.

Suaeda vermiculata FORSK. 1775.
Salsola mollis DESF. 1798; *Suaeda mollis* (DESF.) DEL. 1813; *Salsola globulifera* POIR. 1806.
Typus : *Forskal* (Alexandria in Aeg.).
AETHIOPIA : E.SB.SO. — AFRICA TROPICA : Nu. — EXTRA AFRICAM TROPICAM : Can.N-Af.Aeg.Sin.Ar.
Nomen indigenum : dinas (somali : SB.).

Suaeda Volkensii C. B. CLARKE 1909.
Suaeda vermiculata AUCT. non FORSK. : VOLKENS 1889.
Syntypi : *Bent* (Nubia), *Brown* (Sudan).
AETHIOPIA : E.SO. — AFRICA TROPICA : Nu. SuA.RO.
Observatio. — Propter miram distributionem accuratius inquirenda.

Suaeda sp. (fide GILLILAND 1952).
Nomina indigena : durran-ad, durran-damerad (somali : SB.).
Observatio. — Confer *Suaedam fruticosam.*

Salsola L. 1753 (D. H. 2269).

Salsola Bottae (J. et SP.) BOISS. 1870.
Halothamnus Bottae JAUB. et SPACH 1845; *Caroxylon Bottae* (J. et SP.) MOQ. in DC. 1849; *Salsola Bottae* var. *Faurotii* FRANCHET 1887.
Pleuropterantha Revoilii AUCT. non FR. : TERRACC. 1892.
Typus : *Botta* (Arabia petraea).
AETHIOPIA : E.SF.SB.SO. — EXTRA AFRICAM : Ar.
Nomina indigena : goso-mudo-weyi, gusomadobeye, mirgi-edalis (somali : SB.).

— var. **farinulenta** CHIOV. 1911.
Typus : *Robecchi-Bricchetti,* anno 1891 (ad flumen Webi).
AETHIOPIA : SO.

Salsola congesta N. E. BR. 1909.
Syntypi : *Drake-Brockman* 446, 447 (Somalia Britannica).
AETHIOPIA : SB.

Salsola foetida Delile 1813.

Caroxylon foetidum (Del.) Moq. in DC. 1849; *Chenopodium baryosmun* Roem. et Sch. 1820.

Typus : *Delile* (Aegyptus).

Aethiopia : SF.SB.SO. — Africa Tropica : Nu. Senl. — Extra Africam Tropicam : S-Af.N-Af.Aeg. Ar.Sin.Per.Bel.NW-Ind.

Nomina indigena : mulley (arabice in Aeg.), deberrah (arabice in Nu.), gulan (somali : SB.).

Salsola Forskalii Schweth. 1896.

Syntypi : *Schweinfurth* 95, 138, 158, 298, 1868 (Saati, Aden, Yemen, Erkauit), *Balfour* 359 (Socotra).

Aethiopia : E.SO? — Africa Tropica : Nu. — Extra Africam Tropicam : Aeg.Ar.Soc.

Salsola frutescens Pallas 1771.

Salsola crassa M. B. 1811; *S. cana* C. Koch 1849 p.p.

Typus : *Marschall v. Bieberstein* (planities Caucasico-Caspica).

Aethiopia : E?SB. — Extra Africam : O-Eu.W-As. usque ad Sib.

Nomen indigenum : habugh (somali : SB.).

Observatio. — Species asiatica quoad Af. maxime dubia. verisimiliter commutata.

Salsola imbricata Forsk. 1775.

Caroxylon imbricatum (Forsk.) Moq. in DC. 1849.

Typus : *Forskal* (Lohaja in Yemen).

Aethiopia : E. — Extra Africam Tropicam : Aeg.Ar.W-As. usque ad Chi.

Nomen indigenum : harm (arabice).

Salsola rubescens Franchet 1882.

Typus : *Révoil* (Bender-Gasem).

Aethiopia : N-SO.SB?

Nomen indigenum : arkado (somali : Medjurtin).

Salsola somalensis N. E. Br. 1909.

Typus : *Drake-Brockman* 484 (Somalia Britannica).

Aethiopia : SB.

Nomen indigenum : gowsa-madowbeyi (somali : SB.).

Salsola species indeterminata (fide Chiovenda 1929).

Syntypi : *Robecchi-Bricchetti* 566 (Merehan), *Stefanini* et *Puccioni* 483 (Obbia).

AETHIOPIA : SO.
Nomen indigenum : fara-gorgor (somali).

Salsola sp. (fide GILLILAND 1952).
Nomen indigenum : habu (somali : SB.).

Lagenantha CHIOV. 1929 (D. H. 2269*).

Lagenantha nogalensis CHIOV. 1929.
Syntypi : *Stefanini* et *Puccioni* 916, 918 (Bucdere et Hamur in valle Nogal).
AETHIOPIA : N-SO.SB.
Nomen indigenum : durran (somali : SB.).

— var. **papillosa** CHIOV. 1929.
Typus : *Stefanini* et *Puccioni* 931 (Tur-Cahio versus Handurgab in valle Nogal).
AETHIOPIA : N-SO.

Anabasis L. 1753 (D. H. 2275).

Anabasis articulata (FORSK.) MOQ. in DC. 1849.
Salsola articulata FORSK. 1775.
Typus : *Forskal* (ad Pyramides Aegypti).
AETHIOPIA : E. (Ins. Dahalak; fide ENGLER 1910). — EXTRA AFRICAM TROPICAM : N-Af.Aeg.N-Ar.Sin.Pal.
Nomen indigenum : tartir (arabice in Aeg.).
Observatio. — Bono jure suspicari licet, *A. Ehrenbergii* SCHWFTH. 1896 e S-Ar. et Nu. huc referendam esse.

Cornulaca DEL. 1813 (D. H. 2283).

Cornulaca Ehrenbergii ASCH. ap. SCHWFTH. 1867.
Cornulaca amblyacantha BUNGE forma *Ehrenbergii* TERRACC. 1894.
Tpus : *Steudner,* anno 1861 (Insula Nohra prope Massaua).
AETHIOPIA : E.SF. — AFRICA TROPICA : Nu. — EXTRA AFRICAM TROPICAM : Ar.

Chenopodiacearum species indeterminata (fide COLLENETTE 1931).
AETHIOPIA : NO-SO.
Nomen indigenum : waloh (somali : Buran).

AMARANTHACEAE.

Celosia L. 1753 (D. H. 2292).

Celosia anthelmintica Asch. ap. Schweth. 1867.

Celosia acroprosodes et *C. intermedia* Hochst. 1856 nom. nud.; *C. oblongocarpa* Schinz 1896; *Calicorema anthelmintica* Asch. ex Lopr. 1899 (sphalm.).

Syntypi : *Schimper* 2147, 2173 (Dschadscha in Semien).

Aethiopia : A.GS. — Africa Tropica : Ke.N-Ta. Za.Ug. — Extra Africam Tropicam : N-Af.Ar.

Nomina indigena : bilbilla (tigrinia), belbilda (tigre et amhara).

Observatio. — Medicinam drasticam ad taenias expellendas praebet.

Celosia argentea L. 1753.

Celosia margaritacea L. 1762; *C. splendens* Schum. et Thonn. 1827; *C. argentea* var. *margaritacea* Moq. in DC. 1849.

Typus : ex America tropica.

Aethiopia : E.A.S-SO. — Africa Tropica : S-SuA. Senr.Cor.Dar.Nu.Ke.Ug.Ta.Con.Ny.Mo.An.Ca.Ni.Tho.GC.Li. — Extra Africam Tropicam : Aeg.Ar.Mad.Ind. usque ad Chi.C-Am.S-Am.

Observationes. — 1. — Ornamenti gratia saepe culta.

2. — Semina pro medicamento in dysenteriam utuntur.

Celosia populifolia Moq. in DC. 1849.

Chamissoa populifolia Hochst. in sched. Schimp.

Typus : *Schimper* 1038 (vallis Aguar in prov. Modat [Meda]).

Aethiopia : E.S.H.GS.SB.SO. — Africa Tropica : S-SuA.Cor.Dar.Ke. — Extra Africam Tropicam : Ar.

Nomina indigena : angas (somali : Mahaddei), ged-lalis, hagan-baune (somali : SB.).

Observatio. — Ad conficiendum atramentum adhibetur.

— var. **artemisioides** Mattei 1908.

Typus : *Macaluso* 2 (Merca).

Aethiopia : S-SO.

Nomen indigenum : niho (somali : Merca).

— var. **pluriovulata** Süsseng. 1949.

Typus : *Glover* et *Gilliland* 833 (Buramo).

Aethiopia : SB.

Nomina indigena : maranpfur, hagau-paune (somali : SB.).

Celosia Schweinfurthiana Schinz 1895.

Typus : *Schweinfurth* 3062 (Niam-Niam).

Aethiopia : A. — Africa Tropica : NN.Ke.Ug. Ta.O-Con.Ny.Mo.An.

Celosia trigyna L. 1771.

Achyranthes decumbens et *A. paniculata* Forsk. 1775; *Celosia caudata* Vahl 1790; *Lestibudesia trigyna* (L.) R. Br. 1810; *Celosia trigyna* var. *adoënsis* Moq. in DC. 1849; *C. trigyna* var. *fasciculiflora* Fenzl ex Moq. in DC. 1849.

Typus : e Senegal.

Aethiopia : E.A.GS.H.SO. — Africa Tropica : fere ubique. — Extra Africam Tropicam : S-Af.SW-Af.CV.Mad.Mas.Ar.

Nomina indigena : mehat-abjat, suaed (arabice), bilbilla, bilbiltá (tigrinia), belbilda, belbelta (tigre et amhara), baghiccio (Cosso).

Observatio. — Folia ad usum taenifugum utilia.

— var. **pauciflora** Moq. in DC. 1849.

Typus : *Perville* 730 (Madagascar).

Aethiopia : E. — Extra Africam : Mad.

Amaranthus L. 1753 (D. H. 2299).

Amaranthus abyssinicus Schinz ex Engler-Prantl 1893 nom. nud.

Observatio. — Species dubia nullo loco descripta, in hortis culta.

Amaranthus angustifolius Lam. 1789.

Amaranthus Blitum L. var. *graecizans* Moq. in DC. 1849; *A. graecizans* var. *angustifolius* Asch. ap Schwfth. 1867; *A. silvester* var. *graecizans* Boiss. 1879; *A. angustifolius* var. *graecizans* Thell. 1914; *A. angustifolius* ssp. *graecizans* Süsseng. 1952.

Amaranthus Blitum Auct. non L. : Bak. et Cl. 1909 p.p., prob. Gillil. 1952; *A. graecizans* Auct. non L. : Bak. et Cl. 1909 p.p. et auct. plurimorum Florae aethiop.

Typus : cultus in Horto Botanico Parisiensi.

Aethiopia : E.A.H.SB.SO. — Africa Tropica : Nu.Senr.Ta.Za.Con.Ny.Mo.Rh.Tr.An. — Extra Africam Tropicam : S-Af.SW-Af.CV.Can.N-Af.Eu.Soc.Ar.W-As. usque ad C-As.Ind.

Nomina indigena : bernaheo. bernakhaio-adgit (tigrinia). hammele (tigre). bunnahe (saho). aluma (amhara). aiyu-guri (somali : SB.).

Observationes. — 1. — Folia pro olere comeduntur.

2. — In Med. indigenus, nunc in regionibus tropicis et temperatis fere cosmopolitus.

— forma **nanus** THELL. ap. ASCH. et GRÄBN. 1914.

Amaranthus Blitum var. *nanus* MOQ. in DC. 1849; *A. graecizans* var. *nanus* (MOQ.) ASCH. ap. SCHWFTH. 1867.

Syntypi : *Schimper* 857 (Arabia), *Babey* 262 p.p. (Gallia), *Artaud* (Rio de la Plata), *Drummond* 272 (Ludoviciana).

AETHIOPIA : E.A. — EXTRA AFRICAM : Ar. et alibi.

Observatio. — Fide cl. THELLUNG 1914 in Aethiopia et Ar. tantum indigenus, alibi immigratus, qua de causa *Schimper* 857 typum veridicum sistit.

Amaranthus ascendens LOIS. 1810.

Albersia Blitum KUNTH 1838; *Euxolus viridis* var. *ascendens* MOQ. in DC. 1849; *A. lividus* L. var. *ascendens* THELL. ap. ASCH. et GRÄBN. 1914; *A. lividus* ssp. *ascendens* SÜSSENG. 1952.

Euxolus viridis AUCT. non (L.) MOQ. in DC. : RICHARD 1851; *Amaranthus Blitum* AUCT. non L. : BAK. et CL. 1909 p.p.; *A. graecizans* AUCT. non L. : LANZA et MATTEI 1910.

Syntypi : *Requien* (Avignon), *Lamouroux* (Agen).

AETHIOPIA : E. (*Schimper* 1067). — AFRICA TROPICA : Con. et passim alibi. — EXTRA AFRICAM TROPICAM : SW-Af.N-Af.Mda.Can.Az.Eu.As.S-Am., in toto orbe fere advenus.

Amaranthus Aschersonianus CHIOV. 1919.

Albersia polygama (L.) ASCH. ap. SCHWFTH. 1867; *A. angustifolius* ssp. *Aschersonianus* cum var. *pseudosilvester* THELL. ap. ASCH. et GRÄBN. 1914.

Euxolus polygamus AUCT. non MOQ. : MARTELLI 1888; *Amaranthus polygamus* AUCT. non L. : TERRACC. 1894, BAK. et CL. 1909. FIORI 1912, 1916; *A. Blitum* AUCT. non L. : BAK. et CL. 1909 p.p.

Syntypi : *Kotschy* 48, 82 (Cordofan).

AETHIOPIA : E.A. — AFRICA TROPICA : Nu.SuA. Cor.Ke.Ta.Za.Ny.An.To.Senl. — EXTRA AFRICAM TROPICAM : S-Af.Aeg.Ar.

Observatio. — In aliis regionibus incertus et verisimiliter cum aliis speciebus commutatus.

Amaranthus caudatus L. 1753.

Syntypi : e Peru, Persia et Ceylon.

AETHIOPIA : E.A.S.H.SO. — AFRICA TROPICA : Ke. Ug.Ta.Za.Con.Ny.Mo.Tr.An.Mu.Ca.Ni.To.SL.SuA.Senr.Cor. — EXTRA AFRICAM TROPICAM : SW-Af.Aeg.Eu.Ar.Com. Mad.Mes.Per.Ind.Cey.Am.trop.

Nomina indigena : cifogot (amhara), zelal-enno-mariam (tigrinia), rasu-reinok (somali : Mahaddei).

Observatio. — In Abyssinia, Ind. et Am. trop. seminum alimentarium gratia cultus; semina in Abyss. contra taenias adhibentur, radices decoctae remedium laxans praebent.

— forma **Alopecurus** THELL. in ASCH. et GRÄBN. 1914.

Amaranthus caudatus var. *Alopecurus* MOQ. in DC. 1849; *A. Alopecurus* HOCHST. ex A. BR. et BOUCHÉ 1872.

Typus : *Schimper* 1535 (Adua).

AETHIOPIA : E.GS. — EXTRA AETHIOPIAM : passim in area speciei.

Amaranthus gracilis (DESF. 1804) POIR. 1810.

Chenopodium caudatum JACQ. 1788; *Amaranthus polystachyus* WILLD. 1805; *Euxolus caudatus* (JACQ.) MOQ. in DC. 1849; *Albersia caudata* (JACQ.) BOISS. 1879; non *A. caudatus* L. 1753 !

Amaranthus viridis AUCT. non L. : MARTELLI 1886, PENZIG 1893, BAK. et CL. 1909, ENGLER 1910, FIORI 1912.

Typus : probabiliter e Guinea.

AETHIOPIA : E. — AFRICA TROPICA : Ta.Con.Mo. Tr.An.AEF.Ni.To.SL.Senl. — EXTRA AFRICAM TROPICAM : S-Af.Can.N-Af.Aeg.S-Eu.Ar.As. trop. et subtrop. Au.Pol. Am. trop.

Observationes. — 1. — Pro olere comeditur.

2. — In Am. trop. indigenus videtur, sed hodie fere cosmopolitus.

Amaranthus hypochondriacus L. 1753.

Amaranthus hybridus L. var. *erythrostachys* MOQ. in DC. 1849; *A. hybridus* ssp. *hypochondriacus* THELL. 1912; *A. hybridus* ssp. *hypochondriacus* var. *erythrostachys* THELL. in ASCH. et GRÄBN. 1914; *A. hypochondriacus* var. *erypthrostachys* (THELL.) CHIOV. 1916.

Typus : e Virginia.

AETHIOPIA : E.S-SO. — AFRICA TROPICA : Con.Rh.

Tr.SL. — Extra Africam Tropicam : SW-Af.Aeg.S-Eu.Ar.Am.

Observatio. — Adhuc statu spontaneo nondum repertus, in regionibus calidis et temperatis ornamenti et utilitatis gratia colitur et hinc saepe efferatus.

Amaranthus oleraceus L. 1763.

Blitum oleraceum (L.) Moench 1794; *Amaranthus lividus* L. var. *oleraceus* Thell. in Asch. et Gräbn. 1914.

Typus : ex India orientali.

Aethiopia : SB. — Africa Tropica : N-Ni.Senl. et alibi passim. — Extra Africam Tropicam : Mau. Ar.Aeg.Ind.IN.

Observatio. — Alimenti gratia multis locis colitur.

Amaranthus paniculatus L. 1763.

Amaranthus paniculatus var. *purpurascens* Moq. in DC. 1849; *A. hybridus* ssp. *cruentus* var. *paniculatus* cum forma *densus* Thell. 1912; *A. cruentus* L. var. *paniculatus* (Thell.) Süsseng. 1952.

Typus : ex America.

Aethiopia : E. — Africa Tropica : Con. et certe alibi. — Extra Africam Tropicam : fere cosmopolitus in regionibus calidis et temperatis.

Observatio. — Patria vera adhuc ignota, colitur ornamenti gratia.

Amaranthus Paolii Chiov. 1927.

Typus : *Paoli* 25 (Villaggio Duca Abruzzi ad flumen Uebi-Scebeli).

Aethiopia : SO.

Amaranthus retroflexus L. 1753.

Typus : *Kalm* (Pennsylvania).

Aethiopia : SO. — Africa Tropica : S-Con. et certe alibi. — Extra Africam Tropicam : S-Af.SW-Af. Can.N-Af.Eu.Ar.W- usque ad C-As.N-Am.

Nomen indigenum : rasu-demer (somali : Mogadiscio).

Observatio. — Ex N-America oriundus, nunc vaste diffusus.

Amaranthus sparganiocephalus Thell. in Asch. et Gräbn. 1914.

Syntypi : *Hildebrandt* 716 (Massaua), *Merker*, anno 1904 (« Ostafrikanischer Grabenrand »), *Ehrenberg* (Arabia).

Aethiopia : E.S-SO. — Africa Tropica : Ke?N-Ta. — Extra Africam Tropicam : Ar.

Observatio. — Species porro observanda.

Amaranthus spinosus L. 1753.

Typus : ex Indiis.

Aethiopia : E. — Africa Tropica : Ta.Za.Con.Ny. Mo.Tr.An.FP.Pri.Tho.Ca.Ni.To.SL.GC.Li.Gam.Senl. — Extra Africam Tropicam : S-Af.Mad.Ar.Eu.Ind.As.trop. usque ad Chi.Am.trop.

Observatio. — Species intertropica, in Eu.N-Am.Au. illata et efferata.

— forma **inermis** Lauterb. et K. Schum. 1901.

Amaranthus spinosus var. *inermis* Chiov. 1929.

Amaranthus dubius Auct. non Mart. : Thell. 1914 quoad specim. afric., Chiov. 1916.

Typus : *Lauterbach* (Archipelagus Bismarck).

Aethiopia : E.S-SO. — Africa Tropica : Ke.Ta. N-Ny.Mo. — Extra Africam Tropicam : Mau.Mad. Com.As.trop.Bism.-Arch.Am.trop.

Amaranthus sylvestris (Desf. 1804 nom. nud.) Vill. 1807.

Amaranthus Blitum var. *sylvestris* Moq. in DC. 1849; *A. graecizans* var. *silvester* Asch. ap. Schwfth. 1867; *A. angustifolius* var. *silvester* Thell. in Asch. et Gräbn. 1914.

Amaranthus Blitum Auct. non L. : prob. Penzig 1893, Fiori 1912, Gandoger 1922.

Syntypi : *Tournefort, Vaillant, Loiseleur, Flugge, Lamouroux* (locis pluribus Galliae).

Aethiopia : E.A.SO. — Africa Tropica : Ke.Ta. Za.RU.Con.An.OuC. — Extra Africam Tropicam : Can.Mda.N-Af.Eu.Ar.Sin.SW-As. usque ad Ind.Au.

Nomina indigena : birnaheo (tigrinia), aluma (amhara).

Observationes. — 1. — In N-Am. desideratur, in Au. advena.

2. — Pro olere comeditur, semina Athiopibus in taenias adhibentur.

Amaranthus Thunbergii Moq. in DC. 1849.

Amaranthus melancholicus L. var. *obovatus* et var. *parvifolius* Moq. in DC. 1849.

Amaranthus albus Auct. non L. : Thunb. 1794; *A. graecizans* Auct. non L. : Bak. et Cl. 1909 p.p.

Typus : *Thunberg* (Caput bonae spei).

Aethiopia : E.GS. — Africa Tropica : Con.S-Rh. Tr. — Extra Africam Tropicam : Tr.S-Af.SW-Af.

Nomina indigena : rafu (boran), ransu (somali : Neghelli).

Observatio. — Advenus in Eu., edulis in Aethiopia.

Amaranthus tricolor L. 1753.

Amaranthus melancholicus L. var. *tricolor* Moq. in DC. 1849; *A. tricolor* var. *melancholicus* forma *trichromus* Thell. in Asch. et Gräbn. 1914.

Typus : ex India orientali.

Aethiopia : E.A.H. — Africa Tropica : Nu-SuA. Ta.Za.Mo.An. — Extra Africam Tropicam : S-Af. Ar.Ind.IN.

Observationes. — 1. — Verosimiliter deest in Am.

2. — Saepe alimenti et ornamenti gratia colitur et hinc haud raro efferatus.

— var. **gangeticus** Fiori ap. Fiori et Paol. 1898.

Amaranthus tristis L. 1753; *A. gangeticus* L. 1763; *A. melancholicus* var. *gangeticus* Fiori 1896; *A. tricolor* var. *tristis* Thell. in Asch. et Gräbn. 1914.

Typus : ex India orientali.

Aethiopia : E.A? — Africa Tropica : passim.

Observatio. — In area speciei nec non in Chi.Pol.Am. trop. saepe cultus et efferatus.

Amaranthi species indeterminata (fide Taschdjian in Chiov. 1937).

Nomen indigenum : dhodo (somali : Djibouti).

Amaranthi species omnes (fide Schweinfurth 1893).

Nomen indigenum : bernakhaio (tigrinia).

Digera Forsk. 1775 (D. H. 2302).

Digera alternifolia (L.) Asch. ap. Schwfth. 1867.

Achyranthes alternifolia L. 1767; *Digera arvensis* Forsk. 1775; *Achyranthes Digera* Poir. 1811; *A. polygonoides* Retz. 1781; *Digera arvensis* var. *perennis* et var. *annua* Moq. in DC. 1849; *D. alternifolia* var. *annua* Asch. ap. Schwfth. 1867.

Syntypi : ex Aegypto et Arabia.

Aethiopia : E.S.H.GS.SB.SO. — Africa Tropica : Nu.Cor.Senr.SuA.Ke.N-Ta.RU.Con. — Extra Africam Tropicam : Mad.Soc.Ar.Aeg.Afg.Bel.Ind.Cey.IN.

Nomina indigena : budjer, didjar (arabice), arab-load (somali : Mahaddei), sinei-malovei (somali : Tunni, Bimal, Genale).

Observatio. — Folia in Aethiopia eduntur.

— var. **ciliata** Chiov. 1932.

Achyranthes ciliata Lam. 1789; *Digera ciliata* (Lam.) Mart. 1825.

Typus : *Sonnerat* (India orientalis).

Aethiopia : S-SO. — Extra Africam Tropicam : Ar.Ind.

Pleuropterantha Franchet ap. Rév. 1882 (D. H. 2303).

Pleuropterantha Révoilii Franchet 1882.

Typus : *Révoil* (Tigieh in Medjourtines).

Aethiopia : SB.N-SO.

Nomina indigena : ged-hajin, herin, iber-ror, ul-as (somali : SB.).

— var. **rhodoptera** Chiov. 1929.

Typus : *Stefanini* et *Puccioni* 899 (Dagoi in valle Nogal).

Aethiopia : N-SO.

Pleuropterantha undulatifolia Chiov. 1916.

Typus : *Paoli* 56 (Amar-Gegeb versus Gezira).

Aethiopia : S-SO.

Pseudodigera Chiov. 1936 (D. H. 2303*).

Pseudodigera Pollaccii Chiov. 1936.

Syntypi : *Pollacci* et *Maffei* 4, *Ciferri* 96 (Vittorio d'Africa, Genale).

Aethiopia : SO.

Sericocomopsis Schinz ap. Engl. 1895 (D. H. 2306).

Sericocomopsis Hildebrandtii Schinz 1895.

Cyphocarpus Hildebrandtii (Schinz) C. B. Clarke 1909.

Typus : *Hildebrandt* 2584 (Taita).

Aethiopia : GS.SW-H. — Africa Tropica : Ke. N-Ta.

Sericocomopsis pallida (Sp. Moore) Schinz 1896.

Sericocoma pallida Sp. Moore 1877; *Cyphocarpa pallida* (Sp. Moore) C. B. Cl. 1909.

Typus : *Hildebrandt* 1521 (M. Ahl).

Aethiopia : O-H.SB.SO. — Africa Tropica : Ke. N-Ta.

Nomina indigena : ged-ad, harbo, murash, wanad (somali : SB.).

— var. **parviflora** Süsseng. 1949.

Typus : *Glover* et *Gilliland* 70 (Burao).

Aethiopia : SB.

Nomen indigenum : wanad (somali : SB.).

Cyphocarpa Lopriore 1899 (D. H. 2309).

Cyphocarpa orthacantha (Hochst. ex Asch.) C. B. Clarke 1909.

Pupalia orthacantha Hochst. ex Asch. ap. Schweth. 1867; *Cyathula orthacantha* (Asch.) Schinz in Engl.-Pr. 1893; *Kyphocarpa orthacantha* (Asch.) C. B. Cl. em. Schinz 1934; *Sericocomopsis orthacantha* (Asch.) Peter 1938.

Typus : *Schimper* 232 (Goelleb).

Aethiopia : E.A.H. — Africa Tropica : Ke.Ta.Ny.

Centemopsis Schinz 1912 (D. H. 2309*).

Centemopsis Kirkii (Hook.) Schinz 1912.

Centema Kirkii Hook. 1880; *Achyranthes breviflora* Bak. 1897.

Typus : *Kirk* (ad lacum Nyassa).

Africa Tropica : Ke.Ta.Ny.

Observatio. — Sequens fere certe huc referenda et huius synonymon.

Centemopsis micrantha Chiov. 1916.

Syntypi : *Paoli* 622, 734 (El-Magu, Bur-Meldac), *Stefanini* 1227 (Bur-Acaba).

Aethiopia : S-SO.

Observatio : Confer priorem.

Sericostachys Gilg et Lopr. 1899 (D. H. 2310).

Sericostachys scandens Gilg et Lopr. 1899.

Syntypi : *Zenker* 1420 (Jaunde), Lehmbach 140 (Buëa).

Africa Tropica : Ug.Con.Ca.

Observatio. — In Aethiopia forma typica nondum reperta.

— var. **maior** Chiov. 1940.

Typus : *Giordano* 2468 (Tabor in Saio).

Aethiopia : GS.

Sericostachys tomentosa Lopr. 1899.
Typus : *Scott-Elliot* 7657 (Ruwenzori).
Aethiopia : GS. — Africa Tropica : Ug.
Nomen indigenum : suddi (Uollega).
Observatio. — Ambo species probabiliter in unam contrahendae.

Centema Hook. f. ap. Benth. et Hook. 1880 (D. H. 2311).

Centema Stefaninii Chiov. 1916.
Typus : *Paoli* 357 (Vadda).
Aethiopia : S-SO.
Nomen indigenum : sinei-malovei (somali : inter Genale et Brava).
Observationes. — 1. — Fide Schinz 1934 species dubia forsan ad *Centemopsides* referenda.
2. — *Centema Ellenbeckii* Gilg 1904 nom. nud. est *Blepharispermum Ellenbeckii* (Gilg) Cuf. 1943 *(Compositae)*.

Neocentema Schinz 1912 (D. H. 2311*).

Neocentema Robecchii (Lopr.) Schinz 1912.
Psilotrichum Robecchii Lopr. 1899.
Typus : *Robecchi-Bricchetti* 401 (Merehan).
Aethiopia : N-SO.
Nomen indigenum : balambal (somali : Merehan).

Lopriorea Schinz 1912 (D. H. 2311**).

Lopriorea Ruspolii (Lopr.) Schinz 1912.
Psilotrichum Ruspolii Lopr. 1899.
Typus : *Ruspoli* et *Riva* 1467 (Bela versus flumen Daua).
Aethiopia : GS.SO.S-H.

Cyathula Blume 1825, nom. cons., non Lour. 1790 (D. H. 2312).

Cyathula cordifolia Hochst. ex Chiov. 1911.
Syntypi : *Schimper,* sine nr. (Abyssinia, sine loco), *Chiovenda* 953 (Debarek in Semien).
Aethiopia : E?O-A.

Cyathula cylindrica Bojer ex Moq. in DC. 1849.
Typus : *Bojer* (Tananarivo).
Aethiopia : GS.H. — Africa Tropica : Ke.Ug.Ta.

RU.O-Con.Ny.S-Rh.Tr.An. — Extra Africam Tropicam : Tr.S-Af.Mad.

Cyathula paniculata Haum. 1946.

Cyathula polycephala Auct. non Bak. : Chiov. 1932 p.p.

Syntypi : *Gorini* 78, 91 (Afmadù in Transjuba).

Aethiopia : S-SO.

Cyathula polycephala Baker 1897.

Typus : *Thomson* (Kapti in Massai).

Aethiopia : H. (ad flumen Scebeli superius in Arussi, *Basile* 154; fide Chiov. 1932). — Africa Tropica : Ke. Ug.Ta.RU.O-Con.

Observatio. — Quoad Aethiopiam accuratius observanda.

Cyathula prostrata (L.) Blume 1825.

Achyranthes prostrata L. 1762; *A. geminata* et *A. Thonningii* Schum. 1827; *Pupalia prostrata* (L.) Mart. 1825; *P. Thonningii* et *Cyathula geminata* Moq. in DC. 1849.

Typus : ex India orientali.

Aethiopia ; Abyssinia (sine loco; fide Lopriore 1899). — Africa Tropica : fere ubique. — Extra Africam Tropicam : SO-Af.Can.Mas.Mad.Com.As.trop. usque ad Chi. Phil.NG.Au.NS.Am.trop.

Cyathula Schimperiana Hochst. ex Moq. in DC. 1849.

Typus : *Schimper 3* (M. Kubbi in Tigre).

Aethiopia : E.A.GS.S. — Africa Tropica : Ke. N-Ta.

Nomina indigena : tanag-gehié (tigrinia), talashet (amhara).

Observatio. — Fide Süssenguth 1951 recte hanc cl. Moquin a *C. cylindrica* distinxit.

Cyathula uncinulata (Schrad.) Schinz ap. De Wild. 1932.

Achyranthes uncinulata Schrad. 1833; *Cyathula globulifera* Bojer ex Moq. in DC. 1849; *Desmochaeta uncinulata* (Schrad.) Hiern 1900; *Cyathula uncinulata* var. *uncinulata* Pichi Serm. 1951.

Typus : *Ecklon* (Africa australis).

Aethiopia : E.A.GS.H. — Africa Tropica : Ke. Ug.Ta.RU.Con.Ny.Mo.S-Rh.Tr.An.Ca. — Extra Africam Tropicam : S-Af.Mad.

Nomina indigena : dannak-gähä, tanag-gehié (tigrinia : Tigre), ssogâgo, ssugâgo, zoggogó (tigrinia : Acrur).

— var. **abyssinica** (Moq. in DC.) Pichi Serm. 1951.
Cyathula globulifera var. *abyssinica* Moq. in DC. 1849.
Typus : *Schimper* 392 (Adua).
Aethiopia : E.A. — Africa Tropica : Ug. — Extra Africam Tropicam : S-Af?
Nomina indigena : dannak-gähä, tanag-gehié (tigrinia : Tigre), zoggogó (tigrinia : Acrur).

Pupalia Juss. 1803, nom. cons. (D. H. 2314).

Pupalia atropurpurea (Lam.) Moq. in DC. 1849.
Achyranthes atropurpurea Lam. 1789; *A. lappacea* L. 1762, non 1753; *Pupalia lappacea* Juss. var. *atropurpurea* Schinz ex Peter 1938.
Typus : ex India orientali.
Aethiopia : E.GS.S-SO. — Africa Tropica : Ke. Ta.Mo.Tr. — Extra Africam Tropicam : S-Af.Mad. Per.Ind.Cey.IN.Phil.

— var. **intermedia** Chiov. 1916.
Syntypi : *Paoli* 471 bis, 1145 (Revai ad flumen Djuba, Bur-Eibi), *Stefanini* 1213 (Iscia-Baidoa).
Aethiopia : S-SO.
Nomen indigenum : deg-deg (somali : ins. Tuata in flum. Djuba).
Observatio. — Confer *P. sericeam* Fiori infra.

Pupalia lappacea (L.) Juss. 1803.
Achyranthes lappacea L. 1753; *A. echinata* Retz. 1791; *Desmochaeta flavescens* DC. 1813; *D. xanthioides* A. Br. 1841; *Pupalia velutina* Moq. in DC. 1849; *Pupal lappacea* (L.) Hiern 1900.
Typus : ex India orientali.
Aethiopia : E.A.GS.H.SB.SO. — Africa Tropica : fere ubique. — Extra Africam Tropicam : S-Af.SW-Af.Aeg.Mad.Ar.Ind.IN.Phil.
Nomina indigena : daddu, dannak-gähä-kuolla (tigrinia), hasc'-keto, haschqeto (tigre : Mensa), marabob, marakondu (somali : SB.).

— var. **distantiflora** Asch. ap. Schwfth. 1867.
Pupalia distantiflora Rich. 1851.
Typus : *Quartin-Dillon* (Choho).
Aethiopia : E. — Extra Africam : Ar.
Nomen indigenum : dannak-kolla (tigrinia).

Observatio. — Sine dubio alibi quoque in magna speciei area reperienda.

Pupalia orbiculata (Heyne) Wight 1852.

Achyranthes orbiculata Heyne ex Roxb. 1832; *Cyathula orbiculata* (Heyne) Moq. in DC. 1849.

Typus : *Wallich* 6936 (India orientalis).

Aethiopia : SB. (Arruena; fide Engler 1904). — Africa Tropica : Nu. (Erkowit, *Andrews* 3564; fide Süssenguth 1950). — Extra Africam Tropicam : Ind.Cey.

Pupalia Robecchii Lopr. 1899.

Typus : *Robecchi-Bricchetti* 491 (Somalia, prob septentrionalis).

Aethiopia : SO. — Extra Africam : Ar.

Pupalia scandens Fiori 1912.

Typus : *Fiori* 951 (M. Dongollo prope Ghinda).

Aethiopia : E.

Observatio. — Porro observanda, fide auctoris *P. lappaceae* var. *distantiflorae* affinis.

Pupalia sericea Fiori 1912.

Typus : *Fiori* 16 (Giumbo ad ora fluminis Djuba).

Aethiopia : S-SO.

Nomen indigenum : deg-deg (insula Tuata in flumine Djuba).

Observatio. — Nomine indigeno et loco indicibus *P. atropurpurea* var. *intermedia* Chiov. hac cum specie comparanda et quam maxime probabiliter conveniens.

Dasysphaera Volkens in Engl.-Pr. 1897 (D. H. 2316).

Dasysphaera alternifolia Chiov. 1929.

Typus : *Stefanini* et *Puccioni* 18 (Hafun).

Aethiopia : N-SO.

Dasysphaera Robecchii Lopr. 1899.

Dasysphaera lanata Gilg in Engl.-Pr. 1897 nom. nud.: *Marcellia lanata* (Gilg) C. B. Cl. ap. Bak. et Cl. 1909.

Typus : *Robecchi-Bricchetti* 402 (Merehan).

Aethiopia : SO.

Nomina indigena : bule (somali : inter Genale et Brava), duffolod (somali : Merehan).

Aerva Forsk. 1775, nom. cons. (D. H. 2317).

Aerva arachnoidea Gandoger 1922.
Typus : *Fiori* 50 (Giumbo ad ora fluminis Djuba).
Aethiopia : S-SO.
Observatio. — Species obscura diagnosi incompleta, ulterius comparanda.

Aerva lanata (L.) Juss. 1808.
Achyranthes lanata L. 1753; *Illecebrum lanatum* L. 1771; *Achyranthes villosa* Forsk. 1775; *Ouret lanata* (L.) Hiern 1900.
Typus : ex India orientali.
Aethiopia : E.A.GS.H.SF.SB.SO. — Africa Tropica : ubique. — Extra Africam Tropicam : S-Af. SW-Af.Mas.Mad.Com.Soc.Ar.Aeg.Per.Ind.Cey.IN.Phil.
Nomina indigena : schadjaret-el-athleb (arabice), wanad-yer (somali : SB.), osinadei (somali : inter Genale et Brava), cisasi (somali : Brava), fusi-fusi (somali : Torda).
Observatio. — Species polymorpha varietates multas solito labiles et potius pro formis oecologicis habendas includit, quarum nonnullae sequuntur.

— var. **oblongata** Asch. ap. Schwfth. 1867.
Typus : *Schimper* 300 (Dschadscha in Semien).
Aethiopia : E.A.SB. — Africa Tropica : Nu.Ke. Ta.Con.Ny.
Observatio. — Huc *Schimper* 1030 (e prov. Modat) referendum.

— var. **orbicularis** Süsseng. 1950.
Typus : *Glover* et *Gilliland* 754 (Dagonyado-cliffs).
Aethiopia : SB.

— var. **rotundifolia** Wall. ex Moq. in DC. 1849.
Typus : *Wallich* 6909/g (India orientalis).
Aethiopia : SO. — Extra Africam : Ind.

— var. **Steudneri** Asch. ap. Schwfth. 1867.
Amarantus aervoides Hochst. et Steud. in sched.
Syntypi : *Steudner* 657 (Djenda), *Schimper* 249 (Adua).
Aethiopia : E.A.S.

— var. **viridis** Moq. in DC. 1849.
Typus : *E. Meyer* (Africa australis).

Aethiopia : E. — Extra Africam Tropicam : S-Af.

Observatio. — Fide Mattei 1909 cum praecedente convenit.

Aerva leucura Moq. in DC. 1849.

Typus : *Burchell* 1892 (Africa australis).

Aethiopia : H.SB.S-SO. — Africa Tropica : Ke. Ta.RU.Con.Ny.Mo.Rh.Tr.An. — Extra Africam Tropicam : Tr.S-Af.SW-Af.

Aerva persica (Burm. f.) Merrill 1921.

Iresine persica Burm. f. 1768; *I. javanica* Burm. f. 1768; *Celosia lanata* L. 1753 p.p.; *Aerva tomentosa* Forsk. 1775; *Illecebrum javanicum* (Burm. f.) Ait. 1789; *Achyranthes alopecuroides* Lam. 1789; *A. javanica* (Burm. f.) Pers. 1805; *Aerva javanica* (Burm. f.) Juss. 1808; *Ouret persica* (Burm. f.) Hiern 1900.

Typus : *Garcin* (Persia).

Aethiopia : E.A.S.H.SF.SB.SO. — Africa Tropica : praeter regionem pluviisilvarum ubique. — Extra Africam Tropicam : CV.N-Af.Mas.Com.Soc.Ar.Sin.Pal. Ana.Mes.Per.Ind.Cey.IN.

Nomina indigena : ra, aerua (arabice), sadjaret-ennadje (arabice in Aeg.), legademu (tigrinia), gammafer, gennaffer, ghennafer (tigre), ansala (amhara), tooblé (somali : SF.), oilaitú (somali : Adal), borodoret (somali : inter Genale et Brava), sona, soné, sorna, wanad (somali : SB.).

— var. **Bovei** (Webb) Chiov. 1929.

Aerva javanica var. *Bovei* Webb 1849; *A. Bovei* Edgew. 1862; *A. tomentosa* var. *Bovei* C. B. Cl. ap. Bak. et Cl. 1909.

Typus : *Bové* (Sinai).

Aethiopia : E.SO. — Africa Tropica : Nu.Cor. NiF.OuC?Senl. — Extra Africam Tropicam : CV. Aeg.Sin.Ar.Afg.Ind. et certe alibi quoque.

Nomina indigena : gennaffer (tigre), ansala (amhara), tooblé (somali : Obock), sohne (somali : Obbia et Uebi), ambohe, ombolo (somali : Mahaddei).

Observatio. — Medicinam in morsus anguium et ictus insectorum praebet.

— var. **latifolia** (Vahl) Cuf. comb. nova.

Celosia lanata var. *latifolia* Vahl 1791; *Aerva aegyptiaca* Gmel.

1791; *A. javanica* var. *Forskalii* Webb 1849; *A. persica* var. *Forskalii* (Webb) Schinz in Engl.-Pr. 1934.

Typus : *Forskal* (Aegyptus).

Aethiopia : E.SB. — Africa Tropica : Nu.Senl. — Extra Africam Tropicam : CV.Aeg.Ar.Sin.Per. et sine dubio alibi cum typo.

Aerva Ruspolii Lopr. 1899.

Typus : *Ruspoli* et *Riva* 245 (Deragodleh prope Berbera).

Aethiopia : SB.SO.

Nomen indigenum : amboi (somali : Mogadiscio).

Nothosaerva Wight 1853 (D. H. 2318).

Nothosaerva brachiata (L.) Wight 1853.

Achyranthes brachiata et *Illecebrum brachiatum* L. 1767; *Aerva brachiata* (L.) Mart. 1825.

Typus : ex Surat in India orientali.

Aethiopia : E.S-SO. — Africa Tropica : Nu. Senr.Cor.Dar.SuA.Ke.Ug.Ta.Con.Be.An.Mu.N-Ni.OuC.Senl. — Extra Africam Tropicam : Mau.Mas.Ind.Phil.

Nomen indigenum : geramfel (tigre).

Psilotrichum Blume 1825 D. H. 2324).

Psilotrichum africanum Oliver 1886.

Syntypi : *Johnston* (Kilimandscharo), *Kirk* (Zambesi), *Wakefield* (Ribe).

Aethiopia : S-SO. — Africa Tropica : Ke.Ug.Ta. Za.O-Con.Ny.Mo.Tr.An. — Extra Africam Tropicam : SO-Af.Tr.

Psilotrichum amplum Süsseng. 1949.

Typus : *Glover* et *Gilliland* 402 (inter Waredere et Walwal).

Aethiopia : SB.N-SO.

Nomen indigenum : bandragole bandregole (somali : SB.).

Psilotrichum Boivinianum (Baillon) Cavaco 1952.

Psilostachys Boiviniana Baillon 1886; *Psilotrichum axillare* et *P. edule* C. B. Cl. 1909.

Psilotrichum cordatum Auct. non Moq. : Schinz ap. Engler 1895.

Typus : *Boivin* (Zanzibar).

Aethiopia : SO. — Africa Tropica : Ke.Ta.Za. Mo.Be? — Extra Africam Tropicam : Mad.

Psilotrichum Gloveri Süsseng. 1949.
Typus : *Glover* et *Gilliland* 396 (inter Waredere et Walwal).
Aethiopia : SB.N-SO.
Nomen indigenum : negat (somali : SB.).

Psilotrichum gnaphalobryum (Hochst.) Schinz 1913.
Psilostachys gnaphalobrya Hochst. 1844; *Achyranthes cordata* Hochst. et Steud. in sched. Schimp.; *Psilotrichum cordatum* Moq. in DC. 1849; *P. villosiflorum* Lopr. 1899.
Typus : *Schimper* 785 (M. Gesser in Arabia).
Aethiopia : E.H.GS.SB. — Africa Tropica : Nu. — Extra Africam Tropicam : Aeg.Ar.

Psilotrichum gracilipes Hutch. et Br. 1941.
Typus : *Gillett* 4937 (Debrawen).
Aethiopia : SB.

Psilotrichum nudum (Heyne ex Wall.) Moq. in DC. 1849 (p. 280).
Achyranthes nuda Heyne ex Wall. ap. Roxb. 1824; *Ptilotus ovatus* Moq. in DC. 1849 (p. 281); *Psilotrichum ovatum* Moq. (in DC. 1849 nom. nud.) ex Haum. 1946; *P. calceolatum* Moq. (in DC. 1849 nom. nud.) ex Hook. 1885; *P. Mildbraedii* Gilg ex Schinz 1913; non *P. Elliotii* Bak. 1909 nom. seminud.; nec *P. ovatum* Peter 1938.
Typus : *Heyne* (India orientalis).
Aethiopia : GS. — Africa Tropica : Ug.N-Ta. RU.O-Con. — Extra Africam Tropicam : Ind.Cey.

Psilotrichum ochradenoides Chiov. 1929.
Typus : *Robecchi-Bricchetti* 379 (inter Rer-es-Sogair et Berbera).
Aethiopia : SB.

Psilotrichum Schimperi Engler 1892.
Psilotrichum angustifolium Gilg 1897.
Typus : *Schimper* 1388 (e valle fluminis Reb).
Aethiopia : A. — Africa Tropica : N-Ta.

Psilotrichum sericeo-villosum Chiov. 1926.
Syntypi : *Gorini* 28, 63, 76 (Chisimaio).
Aethiopia : S-SO.

— var. **glabratum** Chiov. 1932.
Typus : *Gorini* 198 (Jonti in Transjuba).
Aethiopia : S-SO.

Psilotrichum tomentosum Chiov. 1929.
Syntypi : *Stefanini* et *Puccioni* 385, 564, 636 (Obbia — Magangib, Gire — Dablarror, Daganeie).
Aethiopia : SO.

Chionothrix Hook. f. ap. Benth. et Hook. 1880 (D. H. 2326).

Chionothrix hyposericea Chiov. 1916.
Typus : *Paoli* 114 (Mogadiscio).
Aethiopia : SO.

Chionothrix latifolia Rendle 1896.
Typus : *Donaldson-Smith* (flumen Shebeli).
Aethiopia : GS.H.SO.

Chionothrix somalensis (Sp. Moore) Hook. f. ap. B. et H. 1880.
Sericocoma somalensis Sp. Moore 1877.
Typus : *Hildebrandt* 1519 (Meid).
Aethiopia : SB.
Nomen indigenum : hagan-gel (somali : SB.).

Achyranthes L. 1753 (D. H. 2328).

Achyranthes aspera L. 1753.
Achyranthes aspera var. *sicula* L. 1753; *A. sicula* All. 1774; *A. argentea* Lam. 1789; *A. abyssinica* Nees 1850; *A. aspera* var. *argentea* Boiss. 1879; *Centrostachys aspera* (L.) Standl. 1915.
Typus : *Boccone* (Sicilia).
Aethiopia : E.A.S.H.GS.SB.SO. — Africa Tropica : ubique. — Extra Africam Tropicam : S-Af. N-Af.Can.Mda.S-Eu.Med.Mau.Mad.Com.Soc.Ar.Sin.Ind.IN.Au.C-Am.
Nomina indigena : gaijeh-mutschollo, maccello, maitjello, mutschollo (tigrinia), dodut, rodut (tigre), talengiuat, tellendsch (amhara), seri-viú (somali : Goscia), ennole (somali : Mahaddei), daibiret (somali : Balad), okas (somali : SB.).
Observatio. — Species valde polymorpha pelaeotropica, in Am. trop. et alibi immigrata.

— var. **fruticosa** Boerlage 1891.
Achyranthes fruticosa Hort. Paris. ex Lam. 1789; *A. aspera* var. *genuina* f. *fruticosa* Asch. ap. Schweth. 1867; *A. aspera* var. *argentea* f. *suffruticosa* Fiori 1912.

Typus : cultus in Horto Botanico Parisiensi e seminibus indicis.
AETHIOPIA : E.A. — AFRICA TROPICA : Senr.Senl. — EXTRA AFRICAM TROPICAM : Ind.IN. et certe alibi.
Nomen indigenum : mutschoko (tigrinia).

— var. **indica** L. 1753.
Achyranthes indica MILLER 1768; *A. obtusifolia* LAM. 1789; *A. aspera* var. *genuina* f. *obtusifolia* ASCH. ap. SCHWFTH. 1867; *Centrostachys indica* (MILL.) STANDL. 1915.
Syntypi : *Burmann* (Ceylon), *Plukenet* (Jamaica).
AETHIOPIA : S-SO. — AFRICA TROPICA : Senr. — EXTRA AFRICAM TROPICAM : Mau.Soc.Ind.Cey.Chi.Jap. Am. trop. et subtrop. et certe alibi quoque.

— var. **procera** FIORI 1912.
Typus : *Schimper* 1234 (Adua).
AETHIOPIA : E.A.GS.

— var. **virgata** (MOQ.) BOERLAGE 1891.
Achyranthes virgata HORT. PARIS. ex POIR. 1811; *A. argentea* var. *virgata* MOQ. in DC. 1849; *A. aspera* var. *sicula* f. *virgata* ASCH. ap. SCHWFTH. 1867.
Typus : in Herb. *Desfontaines* (Portorico).
AETHIOPIA : E. (Ailet, *Ehrenberg*). A. (Gondar, *Steudner* 661); Abyss., sine loco (*Schimper* 1144). — AFRICA TROPICA : Senr.S-Con. — EXTRA AFRICAM TROPICAM : S-Eu.IN. C-Am. et alibi cum typo.

— var. **viridescens** (MOQ.) BOERLAGE 1891.
Achyranthes argentea var. *viridescens* MOQ. in DC. 1849; *A. aspera* var. *sicula* f. *viridescens* ASCH. ap. SCHWFTH. 1867.
Syntypi : *Heldreich* (Catania in Sicilia), *Sieber* (Aegyptus).
AETHIOPIA : Abyssinia, sine loco *(Schimper)*. — EXTRA AFRICAM TROPICAM : Aeg.S-Eu.

Achyranthes Schinzii (STANDL.) CUF. comb. nova.
Achyranthes lanuginosa SCHINZ 1895, non NUTTAL 1833-37; *Centrostachys Schinzii* STANDL. 1915; *Pandiaka lanuginosa* SCHINZ in ENGL.-PR. 1934.
Syntypi : *Fischer* 557 (« Ost-Afrika », sine loco), *Stuhlmann* 335 (Unjoro).
AETHIOPIA : N-SO. (vallis Nogal, *Stefanini* et *Puccioni* 880; fide CHIOV. 1929). — AFRICA TROPICA : Ug.Ta.
Observatio. — Quoad SO. accuratius comparanda.

Achyranthes specie indeterminata (fide Roth ex Harris 1844).
Nomen indigenum : talineh (prob. amhara).

Centrostachys Wall. ap. Roxb. 1824 (D. H. 2328*).

Centrostachys aquatica (R. Br.) Wall. ex Moq. in DC. 1849.
Achyranthes aquatica R. Br. 1810; *Centrostachys flabellifera* Fenzl ex Moq. in DC. 1849.
Typus : *Wallich* 6932 (Maalmyne in India orientali).
Aethiopia : A. — Africa Tropica : Nu.Cor.SuA. OuC.NiF.SuF.N-Ca.N-Ni.Senl.Ta.Con. — Extra Africam Tropicam : Ind. Norfolk, et certe alibi.
Nomen indigenum : talandj (amhara).

Alternanthera Forsk. 1775 (D. H. 2335).

Alternanthera nodiflora R. Br. 1810.
Alternanthera sessilis var. *nodiflora* O. Kuntze 1891; vix *Telanthera nodiflora* Moq. in DC. 1849.
Typus : *R. Brown* (Australia septentrionalis).
Aethiopia : E.A. — Africa Tropica : Nu.Senr. Cor.Dar.S-SuA.Ke.Ta.Con.Ny.Mo.Rh.An.N-Ni.GuiF.Senl. — Extra Africam Tropicam : SW-Af.Aeg?Ind.IN.Jap. N-Au.Pol.
Nomen indigenum : deddem-gähä (tigrinia).

Alternanthera repens (L.) O. Kuntze 1891.
Achyranthes repens L. 1753; *Illecebrum Achyrantha* L. 1762; *Achyranthes mucronata* Lam. 1789; *Alternanthera Achyrantha* R. Br. 1810; *A. echinata* Sm. ap. Rees 1819; *Illecebrum obliquum* Schum. 1827; *Alternanthera Achyrantha* var. *parvifolia* Moq. in DC. 1849.
Typus : e Turcomannia.
Aethiopia : S-SO. — Africa Tropica : Ke.Ta. Con.Mo.S-Rh.Tr.An.Pri.Tho.Ni.To.GC.SuF.GuiF.Senl. — Extra Africam Tropicam : S-Af.SW-Af.Can.S-Eu.Ind.C-As. Au.Am.trop.
Observatio. — Indigena in Am. trop. tantum, unde per orbem divulgata.

Alternanthera Sennii Mattei ap. Lanza et Mattei 1910.
Typus : *Senni* 552 (Agordat).
Aethiopia : E.

Alternanthera sessilis (L.) R. Br. 1810.

Gomphrena sessilis L. 1753; *Illecebrum sessile* L. 1762; *Alternanthera achyranth(oides)* Forsk. 1775; *A. triandra* Lam. 1789; *A. denticulata* R. Br. 1810; *Allaganthera Forskalii* Mart. 1814; *Alternanthera nodiflora* var. *denticulata* Asch. ap. Schweth. 1867; *A. sessilis* var. *denticulata* (Asch.) O. Kuntze 1891; *Achyranthes sessilis* (L.) Standl. 1915.

Typus : ex India orientali.

Aethiopia : E.A. — Africa Tropica : fere ubique. — Extra Africam Tropicam : S-Af.SW-Af.N-Af., intertropica et fere cosmopolita.

Nomen indigenum : hamel (arabice in Aeg.).

Observatio. — In Af. trop. indigena, nunc, praeter Eu., fere per orbem diffusa.

Gomphrena L. 1753 (D. H. 2338).

Gomphrena globosa L. 1753.

Typus : ex India orientali.

Aethiopia : SF. — Africa Tropica : Ug.Ta.Con. S-Rh.Tr.Tho.Ni.Gui. — Extra Africam Tropicam : S-Af.Aeg.Ar.Ind.Am. trop.

Observatio. — Species neotropica saepe culta ornamenti gratia, in terris palaeotropicis interdum efferata.

NYCTAGINACEAE.

Selinocarpus A. Gray 1853 (D. H. 2345).

Selinocarpus somalensis Chiov. 1929.

Typus : *Stefanini* et *Puccioni* 814 (Biaddo in Migiurtinia).

Aethiopia : N-SO.

Observatio. — Generis americani prima species africana porro comparanda.

Mirabilis L. 1753 (D. H. 2347).

Mirabilis Jalapa L. 1753.

Syntypi : ex India utraque.

Aethiopia : E.A.H. — Africa Tropica : Ta.Za. Ny.Con.Mo.An.Ann.Tho.Gui. — Extra Africam Tropicam : S-Af.Aeg.Mau.Com.Ar.Am. trop. et alibi.

Observatio. — In Am. trop. indigena, in Af. sicut aliis regionibus calidioribus ornamenti gratia culta et interdum efferata.

Boerhavia L. 1753 (D. H. 2349).

Boerhavia coccinea Mill. 1768.

B. paniculata L. Rich. 1792, non Lam. 1791; *B. adscendens* Willd. 1797; *B. laxa* Pers. 1805.

Boerhavia diffusa Auct. non L. : Swartz 1791; *B. procumbens* Auct. non Roxb. : Martelli 1888.

Typus : *Swartz* (Jamaica).

Aethiopia : E.A.SB.SO. — Africa Tropica : ubique. — Extra Africam Tropicam : S-Af.Can.NW-Af.Mad.Com.Ar.Am. trop.

Nomina indigena : kudo (kisuahili), deg-deg (somali : ins. Tuata in flumine Djuba).

Observationes. — 1. — Radices decoctae remedium diureticum praebent.

2. — Speciei neotropicae in Af. et Ar. advenae synonymiam cl. Standley 1918 extricavit.

— var. **pubescens** (Choisy) Cuf. comb. nova.

Boerhavia adscendens var. *pubescens* Choisy in DC. 1849.

Typus : *Kotschy* 160 (Cordofan).

Aethiopia : E.A. — Africa Tropica : S-SuA.Cor.

Boerhavia diandra L. 1753.

Boerhavia vulvarifolia Poir. 1804; *B. repens* L. var. *glabra* Choisy in DC. 1849; *B. repens* var. *vulvariaefolia* Boiss. 1879; *Boerhaviae* spec. indet. Borzì 1908.

Typus : *Münchausen* (India orientalis).

Aethiopia : S-SO. — Extra Africam Tropicam : Aeg.Ar.Ind.IN.Au.

Nomen indigenum : dedepto (somali : Goscia).

Observatio. — Proximae speciei, quacum saepe confusa, arcte affinis.

Boerhavia diffusa L. 1753.

Boerhavia repens L. 1753; *Axia cochinchinensis* Lour. 1790; *B. repens* var. *diffusa* Boiss. 1879; *B. repens* forma *amphilahensis* Terracc. 1894; *B. diffusa* forma *glutinoso-hirsuta* Engler 1910 nom. nud.

Boerhavia diandra Auct. non L. : Forsk. 1775.

Typus : ex India orientali.

AETHIOPIA : E.A.O-H.SB.SO. —AFRICA TROPICA : fere ubique. — EXTRA AFRICAM TROPICAM : S-Af.SW-Af.CV.N-Af.Mak.Mas.Mad.Sey.Com.Soc.Ar.Sin.Per.Bel.Ind.Cey. IN.Au.Pol.

Nomina indigena : zerosset (bilin), etnithacca (Erythraea : Mai-Garasit et Damba), dalagh, ged-irman, kaboh-hois (somali : SB.).

Observatio. — Synonymiam specificam cl. MERRILL 1935 patefecit. HEIMERL in ENGL.-PR. 1934 hanc cum *B. caribaeam* JACQ. 1771 congruere opinatus est. Quod si probatum esset, speciei summopere polymorphae in area Am. trop. et subtrop. et in synonymia *B. paniculata* LAM. 1791, non L. RICH. 1792, *B. hirsuta* WILLD. 1794 et *B. viscosa* LAG. et RODR. 1801, etc., includendae erunt. Varietates complures ulterius perscrutandas enumero :

— var. **acutifolia** CHOISY in DC. 1849.

Boerhavia rupestris et *B. Hemprichii* EHRENB. in sched.

Boerhavia diffusa AUCT. non L. : SCHWFTH. 1862.

Syntypi : *Delessert* (Batavia), *Herb. Paris* (Timor), *Wallich* 323 (Prome), *Labillardière*, *Zollinger* 2813 (Java), *Drummond* 735 (Swan River).

AETHIOPIA : E (Chire, *Quartin-Dillon;* fide RICH. 1851-Eilet, *Ehrenberg;* fide ASCH. et SCHWFTH. 1867). — AFRICA TROPICA : SuA. — EXTRA AFRICAM TROPICAM : Ind.IN.Au.

— var. **Ehrenbergii** (ASCH. et SCHWFTH.) CUF. comb. nova.

Boerhavia repens var. *Ehrenbergii* ASCH. et SCHWFTH. ap. SCHWFTH. 1867; *B. bicolor* EHRENB. in sched.

Typus : *Ehrenberg* (Eilet prope Massaua).

AETHIOPIA : E.

— var. **hirta** BALLE ap. PICHI SERM. 1951.

forsan *Boerhavia diffusa* var. *hirsuta* HEIMERL 1889.

Typus : *Brédo* 1595 (lacus Alberti).

AETHIOPIA : Abyssinia (sine loco, fide BALLE 1951). — AFRICA TROPICA : O-Con.SO-Con.Be?

— var. **minor** (DEL.) CUF. comb. nova.

Boerhavia repens var. *minor* DEL. 1813, FIORI 1912.

Typus : *Delile* (Aegyptus).

AETHIOPIA : O-E. — EXTRA AFRICAM TROPICAM : Aeg.

— var. **obtusifolia** Choisy in DC. 1849.
Typus : *Sieber* 145 (Ins. Mauritius).
Aethiopia : SB. vel N-SO. (*Révoil,* fide Franchet 1882). — Extra Africam Tropicam : Mau.Ind.IN. ins. Sandwich.

— var. **pubescens** Choisy in DC. 1849.
Boerhavia pubescens Auct. non Decne. 1835.
Syntypi : *Macrae* (Galapagos), *Wallich* 323 (Melloon), *Lund* (India).
Aethiopia : S-SO (Chisimaio, *Gorini* 57; fide Chiov. 1926). — Extra Africam : Ind.IN.Galapagos.
Observatio. — Varietas prorsus obscura.

— var. **undulata** (Asch. et Schwfth.) Cuf. comb. nova.
Boerhavia repens var. *undulata* Asch. et Schwfth. ap. Schwfth. 1867.
Boerhavia repens Auct. non L. : Bak. et Wr. 1909 p.p.
Typus : *Ehrenberg* (Wadi Mahas et Metihk in Nubia).
Aethiopia : E.O-A. — Africa Tropica : Nu.Cor. Senl. — Extra Africam Tropicam : CV.Aeg.Ar.

— var. **viscosa** (Choisy) Cuf. comb. nova.
Boerhavia viscosa Fres. 1834, non Lag. et Rodr. 1801; *B. repens* var. *viscosa* Choisy in DC. 1849.
Typus : *Fresenius* (Aegyptus).
Aethiopia : E.SB.SO. — Africa Tropica : Nu. Cor.SuA. — Extra Africam Tropicam : Aeg.Ar.
Nomen indigenum : dalagh (somali : SB.).

Boerhavia elegans Choisy in DC. 1849.
Boerhavia rubicunda Steud. 1840 nom. nud.; *B. repens* var. *elegans* Asch. et Schwfth. ap. Schwfth. 1867.
Syntypi : *Schimper* 744 (Arabia), *Aucher-Eloy* 5250 p.p. (Mascat).
Aethiopia : S-E.SB. — Africa Tropica : Nu.Cor. Ke.Ug.Ta.Ny? — Extra Africam Tropicam : Ar.S-Per.Bel.NW-Ind.
Nomen indigenum : ula-aso (somali : SB.).
Observatio. — *B. Marlothii* Heim. 1889 specifice distincta servetur.

— var. **Ellenbeckii** Engler 1904 nom. nud.
Typus : *Ellenbeck* (Ensa).

Aethiopia : W-SB.

Observatio. — Varietas dubia ulterius observanda.

Boerhavia subumbellata Heimerl ex Engl. 1906 nom. nud.

Typus : *Ellenbeck* (Harar, 1860 m s.m.).

Aethiopia : H.

Observatio. — Species prorsus dubia.

Commicarpus Standl. 1909 (D. H. 2349*).

Commicarpus africanus (Lour.) Cuf. comb. nova.

Boerhavia africana Lour. 1790; *Valeriana scandens* Forsk. 1775 saltem p.p.; *Boerhavia plumbaginea* Cav. 1793; *B. dichotoma* Vahl 1805; *B. plumbaginea* var. *dichotoma* Asch. et Schweth. ap. Schweth. 1867; *Commicarpus plumbagineus* (Cav.) Standl. 1916.

Typus : *Loureiro* (Mozambique).

Aethiopia : E.A.H.GS.SB.SO. — Africa Tropica : Nu.Senr.Dar.SuA.Ke.Ta.RU.Con.Mo.Rh.Tr.An.N-Ni.Senl. — Extra Africam Tropicam : S-Af.SW-Af.N-Af.SW-Eu.Med.Ar.Mad.

Nomina indigena : ezui-thana (Erythraea : Uogherico), hamlagila, isnit-aua, utzendaua (tigrinia), bascalla, basgalla (somali), ged-irman (somali : SB.), koko-bala (galla : Harar), charad, choddara (arabice).

Observationes. — 1. — Folia trita pro remedio in laesiones cutaneas adhibentur.

2. — *B. africanam* et *B. plumbagineam* idem esse cl. Merrill 1935 primus cognovit.

— var. **sinuato-lobatus** (Chiov.) Cuf. comb. nova.

Boerhavia plumbaginea var. *sinuato-lobata* Chiov. 1932.

Typus : *Basile* 296 (Scech-Hussen).

Aethiopia : H.

Commicarpus Boissieri (Heim.) Cuf. comb. nova.

Boerhavia Boissieri Heimerl ap. Vierh. 1907; *B. plumbaginea* var. *viscosa* Asch. et Schweth. ap. Schweth. 1867.

Typus : *Ehrenberg* (Sinai).

Aethiopia : E.H. — Extra Africam : Abdelkuri Sin.Bel.NW-Ind.

Commicarpus pedunculosus (Rich.) Cuf. comb. nova.

Boerhavia pedunculosa Rich. 1851; *B. capitata* Engler 1892 nom. nud.

Syntypi : *Quartin-Dillon* (Choho), *Petit* (Chelicote).

Aethiopia : E.A.H. — Africa Tropica : Ke. — Extra Africam Tropicam : Ar.

Observatio. — In Fl. Trop. Afr. 1909 desideratur, sed fide Schweinfurth 1896 speciem sistit bonam.

Commicarpus pentandrus (Burch.) Heim. in Engl.-Pr. 1934.

Boerhavia pendandra Burch. 1822; *B. Burchellii* Choisy in DC. 1849; *B. grandiflora* Rich. 1851; *B. plumbaginea* var. *grandiflora* Asch. et Schwfth. ap. Schwfth. 1867; *B. plumbaginea* var. *pentandra* Fiori 1912; *Commicarpus grandiflorus* (Rich.) Standl. 1916; *Boerhavia transvaalensis* Gandoger 1919.

Boerhavia scandens Auct. non Forsk. : Schwfth. 1893; *B. dichotoma* Auct. non Hochst. : Sacleux 1909.

Tpus : *Burchell* 1765 (ad flumen Vaal).

Aethiopia : E.A.S.GS.SB. — Africa Tropica : Nu.SuA.Ke.Ug.Ta.Ny.Mo.Tr.S-Rh.Be.An.Senl. — Extra Africam Tropicam : S-Af.SW-Af.Ar.As.trop.?

Nomina indigena : isni-taauá, utzen-daua, zinnitame (tigrinia), ged-irman (somali : SB.).

Observationes. — 1. — Viscositatis causa ad cimices capiendos utilis.

2. — Valde affinis *C. africano,* quocum saepius confusus. Specimina ex Aethiopia non exacte typica.

Commicarpus reniformis (Chiov.) Cuf. comb. nova.

Boerhavia reniformis Chiov. 1929.

Typus : *Stefanini* et *Puccioni* 1002 (Halil-Damolle in valle Darror).

Aethiopia : N-SO.

Commicarpus squarrosus (Heim.) Standl. 1916.

Boerhavia squarrosa Heimerl 1896.

prob. *B. linearifolia* Auct. non Pers. : Engler 1904.

Typus : *Fleck* 241/a (Rehoboth in Namaland).

Aethiopia : SO. (W-Ogaden, *Keller;* fide Engler 1904), locis pluribus in N-SO. (*Stefanini* et *Puccioni* 683, 706, 727; fide Chiov. 1929). — Extra Africam Tropicam : SW-Af. Ar. (fide Schwartz 1939).

Observationes. — 1. — « *B. linearifolia* Pers. » nullo loco reperitur nec sane cum *B. linearifolia* Gray 1853 ex America congruere potest.

2. — Qua de specie in SO. et Ar. re vera agetur non liquet, cum HEIMERL ipse (in B.H.B. *5*, app. 3 : 68.1897) patriam Somaliam (leg. *Keller*) errore indicavisse et speciem in SW-Af. endemicam esse (in ENGLER et PRANTL 1934) confessus esset.

Commicarpus stenocarpus (CHIOV.) CUF. comb. nova.
Boerhavia stenocarpa CHIOV. 1929.
Typus : *Stefanini* et *Puccioni* 606 (Moga in peninsula Hafun).
AETHIOPIA : N-SO.

Commicarpus verticillatus (POIR.) STANDL. 1916.
Boerhavia verticillata POIR. 1804; *B. repanda* KOTSCHY in sched. Nub. 144; *B. verticillata* forma *repanda* TERRACC. 1894.
Typus : *Roussillon* (Senegal).
AETHIOPIA : E.A.H.GS.SB.SO. — AFRICA TROPICA : Nu.Cor.Senr.S-SuA.Dar.N-Ta.O-Con.An.SuF.Senl. — EXTRA AFRICAM TROPICAM : CV.N-Af.Ar.Soc.Sin.Pal.Syr.Afg. Bel.Ind.
Nomina indigena : ged-irman, ramak-rinché (somali : SB.).

— var. **glandulosus** (FRANCH.) CUF. comb. nova.
Boerhavia verticillata var. *glandulosa* FRANCHET 1882.
Typus : *Révoil* (prob. O-Somalia Britannica).
AETHIOPIA : SB.N-SO?

— var. **puberulus** HUTCH. et BR. 1941.
Typus : *Gillett* 4247 (Hargeisa).
AETHIOPIA : SB.
Nomen indigenum : ged-irman (somali : SB.).

Commicarpus spec. (fide GILLILAND 1952).
Nomina indigena : ana-mais, ged-irman (somali : SB.).

Bougainvillea COMM. ex JUSS. 1789, em. SPACH 1841 (D. H. 2350).

Bougainvillea spectabilis WILLD. 1799.
Typus : ex Brasilia.
AETHIOPIA : E.SO. — AFRICA TROPICA : Pri.Tho. et certe alibi.
Observatio. — In regionibus tropicis et calidioribus (etiam in S-Su.) ornamenti gratia saepe colitur.

PHYTOLACCACEAE.

Phytolacca L. 1753 (D. H. 2380).

Phytolacca cyclopetala H. Walt. 1909.

Phytolacca abyssinica Auct. non Hoffm. : Del. ap. Rochet 1846.

Typus : *Rochet d'Héricourt* (Ankober).

Aethiopia : S.

Nomen indigenum : indote (amhara).

Phytolacca dodecandra L'Hér. 1785.

Phytolacca abyssinica Hoffm. 1796; *Pircunia abyssinica* (Hoffm.) Moq. in DC. 1849; *P. abyssinica* var. *latifolia* Rich. 1851.

Typus : cultus in Horto Botanico Parisiensi e seminibus a cl. *Bruce* in Abyssinia lectis.

Aethiopia : E.A.S.H.GS. — Africa Tropica : Ke.Ug.Ta.Con.Ny.Mo.S-Rh.An.Mu.Ca.Tho.S-Ni.GC.IC.SL.Li. — Extra Africam Tropicam : S-Af.Mad.Com.

Nomina indigena : andot, endoda, endoth, endott, enduet, hondod, indot, indote, makam-endot, ndot (amhara), chebtthi, scebthi, schebthi, schebti, schubtih, scibti, scipte, sciptí, sciubtih, sipti, ssubtih (tigrinia), sebbet, sobeth, ssebbet, ssibit, ssobeth, thobet, thobete (tigre), ssibid, ssibil (saho), gonnofai (bilin), andodje, endodu (galla).

Observatio. — Radices decoctae in morbos venereos, folia in ascarides et vulnera, semina quoque in ascarides, fructus cocti saponis modo adhibentur, ideoque planta magnae utilitatis.

— var. **apiculata** (Engl.) Bak. et Wr. 1909.

Phytolacca abyssinica var. *apiculata* Engler 1895.

Syntypi : sine collectoribus et locis specialibus (e « Mozambique, Seengebiet, Angola, unterer Congo »).

Aethiopia : A. — Africa Tropica : Ta.Mo.An. Ca.Tho.

— var. **pubescens** Fiori 1911.

Syntypi : *Fiori* 53, 498 (Abrascico et Asmara).

Aethiopia : E.

Nomen indigenum : scibti (tigrinia).

Phytolacca nutans H. Walt. 1909.

Phytolacca abyssinica Auct. non Hoffm. : Engler 1892 p.p.; *P. dodecandra* Auct. non L'Hér. : Bak. et Wr. 1909 p.p.

Typus : *Steudner* 557 (vallis Ghaba in Semien).
AETHIOPIA : O-A.

AIZOACEAE.

Limeum L. 1759 (D. H. 2376).

Limeum indicum STOCKS ex ANDERS. 1860.
Limeum linifolium AUCT. non FENZL. : PAX 1907.
Typus : *Stocks* (Scinde).
AETHIOPIA : E.SF. — AFRICA TROPICA : Nu. — EXTRA AFRICAM TROPICAM : Ar. usque ad NW-Ind.
Observatio. — *L. diffusum* (GAY) SCHINZ (*L. linifolium* FENZL) in W-Af. trop. usque ad S-Af. habitat.

Gisekia L. 1771 (D. H. 2382).

Gisekia pharnacioides L. 1771.
Pharnaceum occultum FORSK. 1775; *Gisekia occulta* (FORSK.) ROEM. et SCH. 1820; *G. linearifolia* SCHUM. 1827; *G. congesta* MOQ. in DC. 1849; *G. pharnacioides* var. *linearifolia* CHIOV. 1932.
Gisekia Miltus AUCT. non FENZL : DRAKE-BROCKMAN 1912.
Typus : ex India orientali.
AETHIOPIA : E.O-H.SB.SO. — AFRICA TROPICA : ubique occurrens. — EXTRA AFRICAM TROPICAM : S-Af. Aeg.Mas.Mad.Ar.Afg.Ind.Cey.
Nomina indigena : eddim-as, os-gedud (somali : Benadir), aiya-yeryer (somali : SB.), agnu (somali : Mogadiscio), sciate (somali : genale), halirgito (Mersa-Taclai in E.).

— var. **Sieberi** MOQ. in DC. 1849.
Typus : *Sieber* 63 (Senegal).
AETHIOPIA : S-SO. (Dibbei, *Senni* 324; fide CHIOV. 1932). — AFRICA TROPICA : Senl.
Observatio. — Ulterius comparanda.

Gisekia rubella HOCHST. ex MOQ. in DC. 1849.
Typus : *Kotschy* 274 (Abu-Gerad in Cordofan).
AETHIOPIA : E. vel A.S-SO. — AFRICA TROPICA : Cor.Ug.Ta.Con.Rh.N-Ca.

Mollugo L. 1753 (D. H. 2387).

Mollugo Cerviana (L.) Ser. in DC. 1824.

Pharnaceum Cerviana L. 1753; *P. umbellatum* Forsk. 1775; *Mollugo umbellata* (Forsk.) Ser. in DC. 1824.

Typus : *Minuart* (Hispania).

Aethiopia : E.GS.SB.SO. — Africa Tropica : fere ubique. — Extra Africam Tropicam : S-Af.N-Af. Mas.Ar.S-Eu.Med.Ind.Cey.C-As.Au.

Observatio. — In Am. calidiore verisimiliter immigrata.

Mollugo nudicaulis Lam. 1797.

Pharnaceum spathulatum Sw. 1797; *P. bellidifolium* Poir. 1804; *Mollugo nudicaulis* var. *bellidifolia* Fenzl 1836.

Typus : *Burmann* (Ceylon).

Aethiopia : E.A.H. — Africa Tropica : ubique. — Extra Africam Tropicam : CV.Aeg.Mas.Mad.Com.Ar. IndCey.IN.Nova-Caledonia,Am.trop.

Observatio. — Non mihi liquet, utrum nomen specificum *nudicaulis* an *spathulata* prioritate gaudeat.

Glinus L. 1753 (D. H. 2388).

Glinus lotoides L. 1753.

prob. *Glinus setiflorus* Forsk. 1775; *Mollugo hirta* Thunb. 1807; *M. lotoides* (L.) Wight et Arn. 1834; prob. *Glinus lotoides* var. *setiflorus* Fenzl 1836; *Mollugo Glinus* Rich. 1847; *M. hirta* var. *lotoides* Cl. ap. Hook. 1879.

Syntypi : e Sicilia et Hispania.

Aethiopia : E.A.GS.SO. — Africa Tropica : diffusus. — Extra Africam Tropicam : S-Af.CV.N-Af. S-Eu.Med.Ar.Sin.W-As.Ind.Au.Am.trop.et subtrop.

Nomina indigena : cosala, cossala, cussala, kossala, kussala (amhara et tigrinia).

Observationes. — 1. — Semina remedium anthelminticum praebent.

2. — In Am. certe, in Au. probabiliter illata.

— var. **virens** Fenzl 1836.

Glinus dictamnoides L. 1771; *G. lotoides* var. *pubescens* Fenzl ex Sond. 1859-60; *G. lotoides* var. *virescens* Fenzl ex Armari 1904 (sphalm.).

Typus : *Burmann* (India).

Aethiopia : E. — Africa Tropica : S-Rh.Tr.Be. — Extra Africam Tropicam : Tr.S-Af.Mad.Ar.Ind.O-IN. Jamaica.

Glinus oppositifolius (L.) A. DC. 1901.

Mollugo oppositifolia L. 1753; *M. Spergula* L. 1762; *Pharnaceum Mollugo* L. 1771; *Glinus Mollugo* (L.) Fenzl 1836; *G. Spergula* (L.) Steud. 1840.

Mollugo glinoides Auct. non Camb. : Rich. 1847, Schweth. et Asch. 1867.

Typus : e Ceylon.

Aethiopia : E.SO. — Africa Tropica : fere ubique. — Extra Africam Tropicam : S-Af.N-Af. Mas.Mad.Ind.Cey.IN.Phil. usque ad Chi?Au.

Observatio. — Species palaeotropica in Am. trop. forsan advena.

Corbichonia Scop. 1777 (D. H. 2393).

Corbichonia decumbens (Forsk.) Exell 1935.

Orygia decumbens Forsk. 1775; *Talinum decumbens* (Forsk.) Willd. 1799; *Glinus trianthemoides* Heyne ex Roth 1821; *Axonothecium trianthemoides* (Heyne) Fenzl 1836; *Orygia mucronata* Kl. ap. Peters 1862.

Typus : *Forskal* (Musa in Arabia).

Aethiopia : E.O-H.SB. — Africa Tropica : Nu. Ke.Ug.Ta.O-Con.Mo.Tr.An. — Extra Africam Tropicam : S-Af.SW-Af.Aeg.Soc.Ar.Bel.NW-Ind.

Trianthema L. 1753 (D. H. 2395).

Trianthema ceratosepala Volk. et Irmsch. 1912.

Typus : *Volkens* 2219 (Kahe ad Kilimandscharo, 750 m s. m.).

Aethiopia : S-SO. — Africa Tropica : Ke.N-Ta.

Trianthema crystallina (Forsk.) Vahl 1790.

Papularia crystallina Forsk. 1775.

Typus : *Forskal* (Dahi in Arabia).

Aethiopia : E.A.S.O-H.SF.SB. — Africa Tropica : Nu.Senr.Cor.Ny.An. — Extra Africam Tropicam : S-Af.SW-Af.Aeg.Ar.Ind.Cey.Au.

Nomen indigenum : daran-ad (somali : SB.).

— var. **obscura** Armari 1904.

Syntypi : *Terracciano* 51 bis, *Cocastelli* 30, *Terracciano* et

Pappi 60, *Ragazzi* et *Pappi* 1225, *Pappi* 42 (locis pluribus in Anfilah, Samhar et Assaorta).

AETHIOPIA : E.

— forma **suberosa** TERRACCIANO 1894.

Typus : *Terracciano* (insula Midir prope Anfilah).

AETHIOPIA : E.

Trianthema pentandra L. 1767.

Rocama prostrata FORSK. 1775; *R. arabica* GMEL. 1791.

Typus : ex Arabia.

AETHIOPIA : E.SB.SO.GS. — AFRICA TROPICA : SuA.Ke.Ug.Ta.RU.O-Con.Mo.Rh.Tr.An.Ni.GC.Senl.SuF. — EXTRA AFRICAM TROPICAM : Aeg.Mas.Mad.Soc.Ar.Pal.

Nomina indigena : auwud-guilla, gurre, gurre-dschemmai, gurre-gemmai (tigrinia), rabá-a, rokama (arabice), tarbah (arabice in Nubia), garjamm, kreduck (tigre), garmesada (cunama), gamanné, rasodamer (somali : Mahaddei), ghemen (somali : Mogadiscio), elbai-sahel (Mersa-Taclai in E.).

Observationes. — 1. — Pro medicina adhibetur succus expectorans, infusum in morbos laryngis, radices decoctae in fibrim et pro emetico, fumus demum in dolores capitis.

2. — Fide MELVILLE 1952 in Ind. certe deest.

Trianthema polysperma HOCHST. ex OLIVER 1871.

Trianthema redimita MELV. 1952.

Trianthema pentandra AUCT. non L. : HUTCH. & BR. 1941 p.p.

Typus : *Kotschy* 68 (Cordofan).

AETHIOPIA : E.SB. — AFRICA TROPICA : Nu.Senr. Cor.SuA.Ke.Ug.N-Ta. — EXTRA AFRICAM TROPICAM : Aeg.Soc.Ar.

Observationes. — 1. — MELVILLE typum hujus specei in exsiccatis ad *T. redimitam* relatis citavit, nomen hoc ideoque in synonymiam religendum.

2. — PAX & HOFFMAN 1934 speciem in India quoque diffusam esse intulerunt, quod autem reiciendum opinor.

Trianthema Portulacastrum L. 1753.

Trianthema monogyna L. 1767.

Syntypi : ex Jamaica et Curassao.

AETHIOPIA : E. — AFRICA TROPICA : Ke.Ug.Ta.Za. Con.OuC.NiF.Ca.N-Ni.To.GC.IC. — EXTRA AFRICAM

Tropicam : S-Af.SW-Af?Aeg.Mad.Ar.W-As.S-Per.Afg.Ind. Cey.IN.Phil.Am.trop.

Trianthema salsoloides Fenzl ex Oliver 1871.
Typus : *Kotschy* 137 (Cordofan).
Aethiopia : N-H. — Africa Tropica : Nu.Senr. Cor.Ke.Ta.

Trianthema sedifolia Vis. 1836.
Typus : *Brocchi* (Khartum).
Aethiopia : E.SO. — Africa Tropica : Nu.Senr. Cor. — Extra Africam Tropicam : Aeg.Ar.

— var. **microphylla** Courbon 1862.
Typus : *Courbon* (Insula Dissé prope Massaua).
Aethiopia : E.

Trianthema Sennii Chiov. 1932.
Typus : *Senni* 666 (Mahaddei).
Aethiopia : SO.

Aizoon L. 1753 (D. H. 2401).

Aizoon canariense L. 1753.
prob. *Glinus crystallinus* Forsk. 1775.
Typus : ex Canariis.
Aethiopia : E.O-S.SB. — Africa Tropica : Nu. — Extra Africam Tropicam : S-Af.CV.Can.Mda.N-Af. Soc.Ar.Sin.Syr.Per.Bel.NW-Ind.

Tetragonia L. 1753 (D. H. 2403).

Tetragonia chisimajensis Chiov. 1932.
Typus : *Gorini* 437 (Gobuin in Transjuba).
Aethiopia : S-SO.

Tetragonia somalensis Engler ex Schellenb. 1912.
Syntypi : *Robecchi-Bricchetti* 31, 507 (flumen Webi 5°-6° N., inter Hafun et Alula).
Aethiopia : SO.

Mesembryanthemum L. 1753 (D. H. 2405).

Mesembryanthemum abyssinicum Regel 1873.
Delosperma abyssinicum (Regel) Schwant. 1928.

Typus : cultus e seminibus a *Schimper* in Abyssinia (sine loco) lectis.

AETHIOPIA : E.A.GS.

Mesembryanthemum Schimperi ENGLER 1909.

Mesembryanthemum abyssinicum PAX ap. ENGLER 1892, non REGEL 1873.

Mesembryanthemum abyssinicum AUCT. non REGEL : SCHWFTH. 1896.

Syntypi : *Schimper* 788, 1783 (M. Erareta in Urahut).

AETHIOPIA : E.

PORTULACACEAE.

Talinum ADANS. 1763 (D. H. 2406).

Talinum caffrum (THUNB.) ECKL. et ZEYH. 1834-37.

Portulaca caffra THUNB. 1794.

Typus : *Thunberg* (Caput bonae spei).

AETHIOPIA : E.SF. — AFRICA TROPICA : SuA.Ke. Ta.Ny.Mo.S-Rh.Tr.Be.An.MC. — EXTRA AFRICAM TROPICAM : S-Af.SW-Af.

Observatio. — Specimina aethiopica ulterius examinanda.

Talinum patens (L.) WILLD. 1800.

Portulaca patens L. 1771; *P. paniculata* JACQ. (1760 nom. nud.) 1772; *Talinum paniculatum* (JACQ.) GAERTN. 1791.

Typus : ex India occidentali.

AETHIOPIA : SO. — AFRICA TROPICA : Con. — EXTRA AFRICAM TROPICAM : N-Am.Am.trop.Cey.IN. usque ad SW-Chi.Pol.

Observatio. — In orbe vetere illatum tantum et hinc inde efferatum.

Talinum portulacifolium (FORSK.) ASCH. et SCHWFTH. 1896.

Orygia portulacifolia FORSK. 1775; *Portulaca cuneifolia* VAHL 1790; *Talinum cuneifolium* (VAHL) WILLD. 1800; *T. roseum* SPRENG. ex N. E. BR. 1893; *T. portulacoides* SCHWFTH. 1893 (sphalm.).

Typus : *Forskal* (Surdud in Hadie Arabiae).

AETHIOPIA : E.O-A.GS.H.SB.SO. — AFRICA TROPICA : SuA.NN.Gh.Cor.Dar.Ke.Ug.Ta.Za.Con.Mo.NO-Rh.Tr.Be.

An.Ca.Ni. — Extra Africam Tropicam : S-Af.SW-Af.Soc.Ar.NW-Ind.

Nomina indigena : mgott-merkua, nigott-mercua, nigott-merkua (agau), mamoc (somali : Bulo-Bulo), camu (somali : Mahaddei), danab-el-tat (arabice), hörudjrudj (arabice : Hadie).

Observatio. — Radicum infusum in gonorrhoeam, folia in morbos oculorum pro remedio adhibentur.

Talinum triangulare (Jacq.) Willd. 1800.

Portulaca triangularis Jacq. (1760 nom. seminud.) 1764; *P. racemosa* L. 1762; *P. crassicaulis* Jacq. 1776.

Typus : *Jacquin* (ex insulis Caribaeis).

Aethiopia : sine dubio reperietur. — Africa Tropica : Ta.Con.An.Tho.Gui. — Extra Africam Tropicam : Ar.N-Am. usque ad S-Am.

Observatio. — In Am. trop. indigenus, multoties pro olere colitur et inde efferatur.

Calyptrotheca Gilg 1897 (D. H. 3114, sub *Capparidaceis*).

Calyptrotheca somalensis Gilg 1897.

Talinum Rivae Chiov. 1915.

Typus : *Ruspoli* et *Riva* 698 (Caiamo ad flumen Ueb-Ruspoli).

Aethiopia : SO.GS.

Observatio. — J. P. M. Brenan 1949 primus perspexit, hanc ad *Portulacaceas* pertinere.

Anacampseros (L. 1753) Sims 1811 (D. H. 2412).

Anacampseros somaliensis v. Poelln. 1933.

Typus : *Riva,* anno 1892 (« Araders in Ogaden »).

Aethiopia : W-SO.

Observatio. — Locus non liquet; forsan potius « Arero » legendus et tum in GS.

Portulaca L. 1753 (D. H. 2421).

Portulaca Ciferrii Chiov. 1936.

Typus : *Ciferri* 36 (Merca).

Aethiopia : S-SO.

Portulaca Erythraeae Schwfth. 1896.

Typus : *Schweinfurth* 1755 (Aidereso).

Aethiopia : E.S-SO.

Portulaca guineensis Lindl. ap. Ker-Gawl. 1824 (descr.).

Portulaca foliosa Ker-Gawl. 1824 (tab. 793); *P. prolifera* Schum. et Thonn. 1827; *P. holosericea* et *P. tenera* Peter 1938.

Typus : cultus e seminibus a G. *Don* in Accra (Gold Coast) lectis.

Aethiopia : E.H?GS. — Africa Tropica : Nu. Senr.Cor.Gh.Ug.Ta.Con.Mo.S-Rh.Be.An.Ca.Ni.To.GC.Dah.IC. Senl.SuF. — Extra Africam Tropicam : S-Af.SW-Af.

— var. **nitidissima** (v. Poelln.) Cuf. comb. nova.

Portulaca foliosa var. *nitidissima* v. Poelln. 1941.

Typus : *Ellenbeck* 1926 (Daroli).

Aethiopia : S-H.

Portulaca kermesina N. E. Br. 1909.

Portulaca pilosa Auct. non L. : Sonder 1862.

Typus : *Lugard* 88 (Kwebe Hills in Ngamiland).

Aethiopia : E.H.SO. — Africa Tropica : O-Af. O-Con.Tr.Be.An. — Extra Africam Tropicam : S-Af. SW-Af.

Observatio. — Area adhuc imperfecte nota.

Portulaca Neumannii Engl. ex v. Poelln. 1933.

Typus : Neumann 143, anno 1901 (flumen Antote prope « Adoshabai », 1400 m).

Aethiopia : GS. — Africa Tropica : Ta. (var. *robusta* v. Poelln. 1940).

Observatio. — Anno et numero monentibus locus verisimiliter est Lacus Abaia).

Portulaca nogalensis Chiov. 1929.

Portulaca nogalensis var. *atricha* Chiov. 1929.

Typus : *Stefanini* et *Puccioni* 856 (Ehil in valle Nogal inf.).

Aethiopia : N-SO.

— var. **heterotricha** Chiov. 1929.

Typus : *Stefanini* et *Puccioni* 929 (Gombeia versus Tur-Cahio in valle Nogal).

Aethiopia : N-SO.

— var. **homotricha** Chiov. 1929.

Typus : *Stefanini* et *Puccioni* 831 (Doldol versus Nogal).

Aethiopia : N-SO.

Portulaca oleracea L. 1753.

Syntypi : ex Europa australi, India, ins. Ascensionis, America.

AETHIOPIA : E.A?GS.H.SB.SO. — AFRICA TROPICA : fere ubique. — EXTRA AFRICAM TROPICAM : S-Af. N-Af.S-Eu.Mad.Com.Ar.Sin.Ind.Asc.Am.

Nomina indigena : melhenna, melkhenna (tigrinia), giabarra, ssallata (tigre), aiya, aiyo (somali : SB.), agno-uen (somali : Mahaddei).

Observationes. — 1. — Edulis et decocta diaphoretica.

2. — In orbe vetere indigena, nunc culta et efferata in regionibus calidioribus fere cosmopolita.

Portulaca quadrifida L. 1767.

Portulaca imbricata et *P. linifolia* FORSK. 1775; *P. anceps* RICH. 1847; *P. quadrifida* var. *imbricata* SCHWFTH. 1896.

Typus : ex Aegypto.

AETHIOPIA : E.A?H.SB.SO. — AFRICA TROPICA : diffusa. — EXTRA AFRICAM TROPICAM : S-Af.Mas.Mad. Com.Ar.As.trop. usque ad Chi.Am.trop.

Nomina indigena : melhehenna, melkhenna (tigrinia), djabarra (tigre), dananiso, hadu-as (somali : SB.), armó (somali : S-SO.), örnuba, rozzi (arabice).

Observatio. — Praeter Eu. et Au. in terris calidioribus fere cosmopolita.

— forma **vestita** ENGL. ex v. POELLN. 1941.

Typus : *Robecchi-Bricchetti* 151 (Obbia versus Wuarandi).

AETHIOPIA : N-SO. — AFRICA TROPICA : N-Ta.

Portulaca rubrifolia v. POELLN. 1941.

Typus : *Ellenbeck* 940, anno 1900 (« Somalia vel Harar »).

AETHIOPIA : H.

Observatio. — Numero et anno indicibus locus potius in H. quaerendus.

Portulaca somalica N. E. BR. 1886.

Typus : *James* et *Thrupp* (Somalia, sine loco).

AETHIOPIA : SB.SO.GS.

Nomina indigena : dananiso, hadu-sagaro (somali : SB.), armó (somali : Bur-Meldac).

Portulaca Wightiana WALL. ex WIGHT et ARN. 1834.

Typus : *Wight* (Wallajabad prope Madras).

Aethiopia : SB. (Afard, *Gillet* 4462; fide Hutch. et Br. 1941). — Extra Africam : Ind.Cey.

Portulacae species (fide Drake-Brockmam 1912).
Nomen indigenum : sinsagar (somali : SB.).

Portulacae species (fide Gilliland 1952).
Nomen indigenum : durran (somali : SB.).

BASELLACEAE.

Basella L. 1753 (D. H. 2424).

Basella rubra L. 1753.
Basella alba L. 1753; *B. nigra* Lour. 1790; *B. cordifolia* Lam. 1790.
Typus : ex India orientali.
Aethiopia : A.S. — Africa Tropica : NN.Ug. N-Ta.RU.Con.Tho.Ca.Ni.To.Dah.IC.SL. — Extra Africam Tropicam : CV.Can.Aeg.Syr.Ind.IN. usque ad Chi.Jap.Phil. Am.trop.
Observatio. — Florum colore valde variabilis, in orbe vetere, praesertim Af. indigena, pro olere saepe culta et interdum efferata.

CARYOPHYLLACEAE.

Stellaria L. 1753 (D. H. 2429).

Stellaria Erlangeriana Engler (1906 nom. nud.) ex Pax et Hoffm. in Engl.-Pr. 1934 (in clavi).
Syntypi : *Ellenbeck* (Djam-Djam 2500 m), *Neumann* (Abera, 3000 m).
Aethiopia : GS.
Observatio. — Diagnosis legitima nullo loco reperitur.

Stellaria media (L.) Cyr. 1784.
Alsine media L. 1753.
Typus : ex Europae cultis.
Aethiopia : E. — Africa Tropica : montes Af. trop. Ny.Tr.An.Tho. et alibi. — Extra Africam Tropicam : S-Af.Aeg.Mad.Mas.Ar.Sin.As.Eu.
Observatio. — In regionibus temperatis et arcticis orbis veteris indigena, hodie fere cosmopolita.

— var. **Brauniana** Engler 1895.

Stellaria Brauniana Fenzl ap. Schwfth. 1867 nom. nud.; *S. Braunii* Fenzl ex Engl. 1892 nom. nud.

Typus : *Schimper* 98 (vallis Maschiha [Mai-Sciaha] in Semien).

Aethiopia : A. — Africa Tropica : N-Ta.RU. O-Con.Ny. — Extra Africam Tropicam : Ind?

Stellaria nemorum L. 1753.

Typus : ex Europae nemoribus.

Aethiopia : E. (vallis Lava; fide Penzig 1893). — Extra Africam : Eu. usque ad Cauc.

Observatio. — Valde dubia quoad Aethiopiam, cum in Af. nunquam reperta sit.

Stellaria Sennii Chiov. 1940.

Typus : *Senni* 2165 (M. Mannagascia prope Addis-Abeba).

Aethiopia : S.

Cerastium L. 1753 (D. H. 2430).

Cerastium indicum Wight et Arn. 1834.

Arenaria africana Hook. f. 1864; *Cerastium africanum* (Hook. f.) Oliver 1868; *Stellaria Schimperi* Engl. 1892; *Cerastium africanum* var. *ruwenzoriensis* Williams 1898; *C. africanum* var. *Schimperi* Engl. 1912; *C. Schimperi* (Engl.) De Wild. 1922; *C. indicum* var. *ruwenzoriense* (Will.) Möschl 1951.

Typus : *Wight* 149, ed. Hohen. 1512 (Kaity in M. Nilagiri).

Aethiopia : A.S.H. — Africa Tropica : Ke.Ug. Ta.O-Con.Ny.S-Rh.Ca. — Extra Africam Tropicam : SO-Af.Réu.Mau.Mad.Com.S-Ind.Cey.IN.

Observationes. — 1. — Cl. monographus W. Möschl (in Mem. Soc. Brot. 7 : 15-120.1951) *Cerastia* africana optime patefecit.

2. — Varietas *ruwenzoriense* totam speciei aream inhabitans pro typica habenda.

Cerastium octandrum Hochst. ex Rich. 1847.

Cerastium simense var. *humile* A. Br. ex Schfwth. 1867; *C. vulgatum* var. *octandrum* Oliv. 1868; *C. caespitosum* Gil. var. *octandrum* et var. *simense* cum f. *humilis* Engl. 1904; *C. vulgatum* var. *simense* (Engl.) Pax 1907; *C. octandrum* var. *humile* (A. Br.) Möschl 1951.

Cerastium viscosum Auct. non L. : Oliver 1868 et auct. Florae aethiop. et Florae afric. p.p. max.; *C. caespitosum* Auct. non Gil. :

auct. Florae aethiop. p.p. max.; *C. glomeratum* Auct. non Thuill. : Rich. 1847 saltem p.p.

Typus : *Schimper* 1841 (Adua).

Aethiopia : E.A.S.H. — Africa Tropica : Dar? S-SuA.Ke.Ug.Ta.RU.O-Con.Ca.

Observatio. — Varietas *humile* totam specei aream inhabitat et pro typica habenda.

— var. **scandens** (Engl.) Cuf. comb. nova.

Cerastium caespitosum Gil. var. *scandens* Engler 1904.

Syntypi : *Ellenbeck* 1444 (Didah in Arussi), *Neumann* 40, 1834, 1834/a (Abera, Djam-Djam).

Aethiopia : GS.W-H.

Observatio. — Huius specimina cl. Möschl non vidit, quare incertum permansit, utrum varietas *C. octandri* sit, an cum *C. afromontano* Fr. et Weim. 1929 (Dar?S-SuA.Ke.Ta.O-Con.) conveniat.

Sagina L. 1753 (D. H. 2433).

Sagina abyssinica Hochst. ex Rich. 1847.

Typus : *Schimper* 1148 (Demerki in Semien).

Aethiopia : A. — Africa Tropica : Ug.N-Ta. O-Con.Ca.FP.

Sagina brachysepala Chiov. 1911.

Typus : *Chiovenda* 2938 (Debarek in Semien).

Aethiopia : O-A.

Minuartia Loefl. ex L. 1753 (D. H. 2441).

Minuartia filifolia (Forsk.) Mattf. 1921.

Arenaria filifolia Forsk. 1775; *Alsine filifolia* (Forsk.) Schwfth. 1896.

Typus : *Forskal* (Boka in Arabia).

Observatio. — Planta typica (*M. filifolia* var. *glabra* Schwfth. ex Mattf. 1922) in Arabia tantum occurrit.

— var. **Schimperi** (Schwfth.) Mattf. 1922.

Alsine Schimperi Hochst. ex Rich. 1847; *A. Schimperi* var. *graminifolia* Webb 1854; *Arenaria Schimperi* (Hochst. ex Rich.) Oliver 1868; *Alsine filifolia* var. *Schimperi* Schwfth. 1896 (in obs.), Fiori 1912; *A. Schimperi* var. *Erlangeriana* Engler 1906 nom. nud.; *A. Schimperi* var. *Ellenbeckii* Engler 1912; *Minuartia*

Schimperi (Hochst. ex Rich.) Chiov. 1919; *M. filifolia* var. *Erlangeriana* (Engl.) Chiov. 1939.

Syntypi : *Quartin-Dillon* et *Petit* (Ouodjerat), *Schimper* 549, 1892 (M. Kubbi, M. Scholoda).

Aethiopia : E.A.H. — Africa Tropica : Senr.Dar.

Arenaria L. 1753 (D. H. 2443).

Arenaria serpyllifolia L. 1753.

Typus : ex Europae silvis glareosis.

Observatio. — Specimina ex Af. trop. consensu auctorum ad var. sequentem referenda.

— var. **viscida** DC. 1815.

Arenaria viscida Haller f. ex Lois. 1810; *A. serpyllifolia* var. *viscidula* Roth 1827; *A. serpyllifolia* var. *glutinosa* Mert. et Koch 1831; *A. serpyllifolia* var. *glandulosa* Koch ex Schwfth. 1896 (sphalm.); *A. serpyllifolia* forma *viscida* Hayek 1927.

Arenaria serpyllifolia var. *tenuior* Auct. non Mert. et Koch : Fiori 1912, 1916.

Typus : *Loiseleur* (Bordeaux in Gallia).

Aethiopia : E.A.H.SB. — Africa Tropica : Nu. — Extra Africam Tropicam : S-Af.Med.Eu.Ar.W-As.

Observatio. — *A. serpyllifolia ssp. leptoclados* Oborny 1885 veridica (*A. serp.* var. *tenuior* Mert. et Koch; *A. leptoclados* Guss.) in Af. deesse videtur.

Arenaria vestita Baker 1895.

Typus : *Cole* et *Lort-Phillips* (Daraas in M. Golis).

Aethiopia : SB.

Spergula L. 1753 (D. H. 2449).

Spergula arvensis L. 1753.

Spergula vulgaris Boenn. 1824; *S. arvensis* var. *vulgaris* Syme 1864; *Spergularis arvensis* L. ex Fiori 1940 (sphalm.).

Typus : ex Europae agris.

Aethiopia : A.S. — Africa Tropica : Nu.O-Con. Tr.An. — Extra Africam Tropicam : S-Af.N-Af.Aeg.

Observatio. — Planta segetalis in Eu. indigena nunc per totum fere orbem diffusa.

Spergularia (Pers. 1805) J. et C. Presl 1819, nom. cons. (D. H. 2450).

Spergularia media (L.) Presl ex Gris. 1843.

Arenaria media L. 1762; *A. marginata* DC. 1805; *Lepigonum marinum* Wahlb. 1820-24 p.p.; *Spergularia marginata* (DC.) Kittel 1844.

Syntypi : e Germania et Gallia.

Aethiopia : sine loco (*Schimper;* fide Kindb. 1863, Schwfth. et Asch. 1867). — Extra Africam Tropicam : S-Af.N-Af.Aeg.Eu.Ana.Mes.Per.Afg.Sib.N-Am.S-Am.

Observatio. — In Eu. et Med. indigena, alibi immigrata tantum.

Spergularia rubra (L.) J. et C. Presl 1819.

Arenaria rubra var. *campestris* L. 1753; *Spergularia rubra* var. *campestris* (L.) Fenzl 1844; *Spergularia campestris* Asch. 1859; *Tissa campestris* (Asch.) Pax in Engl.-Pr. 1889; *Spergularia macrosperma* (Kindb.) Asch. ex Schwfth. et Asch 1867 (sphalm.) p.p.

Arenaria rubra Auct. non L. : Rich. 1847; *Lepigonum microspermum* Auct. non Kindb. 1863 quoad Aeth.; *S. diandra* Auct. non (Guss.) Boiss. : Boiss. 1867 et Gräbner 1919 quoad Aeth.

Typus : ex Europae collibus arenosis.

Aethiopia : E.A. — Extra Africam Tropicam : S-Af.Mak.N-Af.Eu.W-As. usque ad Ind.N-Am.

Observatio. — Hodie fere cosmopolita.

Spergularia.

Observatio. — *S. Bocconii* (Sol. ex Scheele) Fouc. ex Mer. (*Lepigonum campestre,* fide Kindb. 1863; *Spergularia atheniensis,* fide Schwfth. et Asch. 1867) et *S. purpurea* (Pers.) G. Don (fide Kindb. 1863, Schwfth. et Asch. 1867) sine dubio in Aethiopia desunt et cum aliis speciebus commutatae errore citantur.

Drymaria Willd. ex Roem. et Schult. 1819 (D. H. 2452).

Drymaria cordata (L.) Willd. ex Roem. et Sch. 1819.

Holosteum cordatum L. 1753.

Syntypi : ex Jamaica et Surinam.

Aethiopia : A.GS. — Africa Tropica : Ug.N-Ta. RU.Con.Ny.Mo.An.FP.Pri.Tho.Ca.IC.SL.GuiF. — Extra Africam Tropicam : S-Af.Mas.Mad.Com.Sey.As. trop. Am.trop.

Polycarpon (Nathh. 1756) Loefl. ex L. 1759 (D. H. 2453).

Polycarpon prostratum (Forsk.) Pax in Engl.-Pr. 1889 (martio).

Alsine prostrata Forsk. 1775; *Pharnaceum depressum* L. 1771; *Loeflingia indica* Retz. 1786; *Polycarpaea memphitica* Del. 1813; *Arenaria prostrata* (Forsk.) Ser. in DC. 1824; *Polycarpaea depressa* (L.) DC. 1828; *Arversia memphitica* (Del.) Fenzl ap. Endlich. 1836-40; *A. memphitica* var. *fazoglensis* Webb 1854; *Polycarpon Loeflingii* (Wight et Arn. 1834) Benth. et Hook. 1862; *P. depressum* (L.) Rohrb. ap. Mart. 1872, non Nuttal 1838; *P. indicum* (Retz.) Merr. 1915; *Polycaepaea Loeflingii* (W. et A.) De Wild. 1919; *Polycarpon memphiticum* (Del.) Br. et Mass. 1929.

Typus : *Forskal* (Cairo).

Aethiopia : W-A.SO. — Africa Tropica : Nu. Senr.Cor.Con.Mo.An.Ni. usque ad Senl. — Extra Africam Tropicam : N-Af.Aeg.Mad.Ind.

Nomen indigenum : robbaire (arabice in Aegypto).

Observatio. — Synonymiam intricatissimam Milne-Redhead (in Kew Bull. 1948) patefecit.

Polycarpon tetraphyllum L. 1759.

Mollugo tetraphylla L. 1753.

Syntypi : ex Italiae et Narbonae vineis.

Aethiopia : E.A. — Africa Tropica : Nu. — Extra Africam Tropicam : Tr.S-Af.N-Af.Aeg.Med. Eu.Ar.Ind.Au.S-Am.

Observatio. — Species mediterranea nunc per orbem fere diffusa.

Polycarpaea Lam. 1792, nom. cons. (D. H. 2455).

Polycarpaea corymbosa (L.) Lam. 1793.

Achyranthes corymbosa L. 1753; *Paronychia linearifolia* DC. ap. Lam. 1804; *Polycarpaea linearifolia* (DC. ap. Lam.) DC. 1828; *P. corymbosa* var. *effusa* et var. *parviflora* Oliv. 1868.

Typus : e Ceylon.

Aethiopia : E.A.H.GS. — Africa Tropica : ubique. — Extra Africam Tropicam : S-Af.Mad.Ar. Ind.Cey. usque ad Au.

Observatio. — Species polymorpha.

— var. **grandiflora** Pax 1893.

Syntypi : *Schimper* 149, 435 (Gageros, Bellitschen).

Aethiopia : E.A. — Africa Tropica : Cor.Ds.Ta. — Extra Africam Tropicam : S-Af.Cey.Coch.

Observatio. — Certe alibi quoque in area speciei reperietur.

Polycarpaea eriantha Hochst. ex Rich. 1847.

Polycarpaea corymbosa var. *eriantha* Pax 1893.

Polycarpaea corymbosa Auct. non Lam. : Auct. Florae afric. p.p.

Typus : *Schimper* 823 (Gapdia in Tigre).

Aethiopia : E.A. — Africa Tropica : Senr.Cor. Ds.Dar.Con.Rh.An.Ni.GC. usque ad Senl.SuF. — Extra Africam Tropicam : Mad.

Polycarpaea somalensis Engler 1912.

Typus : *Riva* 1716 (Somalia, sine loco).

Aethiopia : SO. vel GS.

Polycarpaea spicata Wight et Arn. 1839.

Polycarpaea staticaeformis Hochst. et Steud. (ex Fenzl 1836-40 nom. nud.) ex Webb 1854.

Typus : *Wight* (Tuticoreen in India orientali).

Aethiopia : NO-E. — Africa Tropica : Nu. — Extra Africam Tropicam : Aeg.Soc.Ar.Bel.Ind.NW-Au.

Robbairea Boiss. 1867 (D. H. 2455*).

Robbairea Delileana Milne-Redhead 1948.

Arenaria prostrata (Forsk.) Ser. in DC. 1824 (descr.); *Polycarpaea prostrata* (Forsk.) Decne. 1835 (descr.); *Robbairea prostrata* (Forsk.) Boiss. 1867 (descr.); *Polycarpa Robbairea* O. Ktze. 1891.

Alsine prostrata Auct. non Forsk. : Del. 1813.

Typus : *Delile* (Aegyptus).

Aethiopia : E.SO. — Africa Tropica : Nu. — Extra Africam Tropicam : Aeg.Ar.Sin.Pal.Syr.Mes.

Nomen indigenum : catetet-sauahil (Mersa-Taclai in E.).

Observatio. — Confer *Polycarpon prostratum,* quocum hucusque solito commutata.

Pollichia Sol. ap. Ait. 1789, nom. cons. (D. H. 2467).

Pollichia campestris Sol. ap. Ait. 1789.

Neckeria campestris (Sol.) Gmel. 1791; *Meerburgia glomerata* Moench 1802; *Bergia abyssinica* Rich. 1847.

Typus : *W. Paterson* (Caput bonae spei).

Aethiopia : E.A.S.GS.SB. — Africa Tropica : Ke. usque ad Be. — Extra Africam Tropicam : S-Af. SW-Af.Ar.

Nomen indigenum : maar-quach (Grat-Gabru in E.).

Corrigiola L. 1753 (D. H. 2469).

Corrigiola litoralis L. 1753.

Corrigiola capensis Willd. 1799.

Syntypi : e Galliae et Germaniae litoribus arenosis.

Aethiopia : E.A.S.H. — Africa Tropica : N-Ta. S-Rh.Tr.Be. — Extra Africam Tropicam : S-Af.SW-Af.N-Af.Med.Eu.Ana.C-Am.S-Am.

Nomina indigena : söbhi-dehl (tigrinia), moka-ija (Harar).

Observatio. — In Eu. et Med. indigena, nunc late diffusa.

Paronychia Adanson 1763 (D. H. 2473).

Paronychia arabica (L.) DC. ap. Lam. 1804.

Illecebrum arabicum L. 1767; *Corrigiola albella* Forsk. 1775.

Typus : *Forskal* (Arabia).

Aethiopia : SO-S. (Tedetschamalka, *Rosen;* fide Pax 1907). — Extra Africam Tropicam : Aeg.Ar.Sin. Pal.Syr.Per.

Paronychia bryoides Hochst. ex Rich. 1847.

Typus : *Schimper* 661 (M. Silke in Semien).

Aethiopia : O-A.

Paronychia erythraea Fiori 1912.

Typus : *Fiori* 993 (Addi-Caieh versus Mai-Affiletà).

Aethiopia : E.

Paronychia sedifolia R. Br. ap. Salt 1814 nom. nud.

Typus : *Salt* (Abyssinia, sine loco).

AETHIOPIA : E. vel A.

Observatio. — Species male cognita, forsan ad *P. bryoidem* referenda.

Paronychia somaliensis BAKER 1895.

Typus : *Cole* et *Lort-Phillips* (Wardie in M. Golis).

AETHIOPIA : SB.

Paronychia.

Observatio. — Generis summopere revisione egentis species adhuc male delimitatae.

Herniaria L. 1753 (D. H. 2476).

Herniaria hirsuta L. 1753.

Herniaria Regnieri AUCT. non BR.-BL. et MAIRE : HERMANN 1937 quoad exs. *Schimper* 202, 1413.

Typus : ex arvis Angliae, Hispaniae, Italiae.

AETHIOPIA : E.A. — EXTRA AFRICAM TROPICAM : Can.N-Af.Aeg.Med.Eu.Ana.usqueadNW-Ind.Sib.

Observationes. — 1. — Fide HERMANN (in Fedde Rep. *42* : 203-224.1937) in Med. indigena, in S-Af. desideratur, alibi passim advena.

2. — Idem auctor SCHIMPERI exsiccata citata ad *H. Regnieri* retulit, speciem arcte affinem ex Atlante medio et maiore.

Scleranthus L. 1753 (D. H. 2483).

Scleranthus annuus L. 1753.

Typus : ex Europa.

AETHIOPIA : E.A.S. — EXTRA AFRICAM TROPICAM : S-Af.N-Af.Med.Eu.Ana. usque ad Sib.N-Am.

Nomina indigena : zeguer-demmu, zoggeri-dummo (tigrinia).

Observatio. — In Eu.As. et Med. indigenus.

Scleranthus hamatus CHIOV. 1940.

Syntypi : *Senni* 2036 (Entotto), 899, 1523 (Debra-Sina).

AETHIOPIA : S.

Cometes L. 1767 (D. H. 2485).

Cometes abyssinica R. Br. ex Wall. 1830.
Saltia abyssinica R. Br. ap. Salt 1814 nom. nud.; *Cometes apiculata* Decne. 1834.
Typus : *Salt* (Axum in Tigre).
Aethiopia : E.A.SB.N-SO. — Africa Tropica : Nu.SuA.Dar. — Extra Africam Tropicam : Aeg.Mad. Ar.Sin.
Nomina indigena : kegam (tigre), sar-saró (Uogherico in E.).

Hafunia Chiov. 1929 (D. H. 2485*).

Hafunia globifera Chiov. 1929.
Typus : *Stefanini* et *Puccioni* 23 (Hafun).
Aethiopia : E.N-SO.

Uebelinia Hochst. 1841 (D. H. 2487).

Uebelinia abyssinica Hochst. 1841.
Typus : *Schimper* 302 (Adua).
Aethiopia : E.S. — Africa Tropica : O-Con.

Uebelinia Erlangeriana Fries 1923.
Uebelinia rotundifolia var. *Erlangeriana* Engler 1912.
Syntypi : *Ellenbeck* 1785 (Djam-Djam in Sidamo), 1876 (Busaftù in Arussi).
Aethiopia : S.GS.NW-H?

Uebelinia spathulifolia Hochst. ex Fries 1923.
Uebelinia abyssinica Auct. non Hochst. : Rich. 1847 p.p., Engler 1892 p.p.
Typus : *Schimper* 569 (Demerki in Semien).
Aethiopia : O-A.

Silene L. 1753 (D. H. 2490).

Silene apetala Willd. 1799.
Typus : cultus in Horto Botanico Berolinensi.
Observatio. — Species typica inhabitat Can.N-Af.Med.S-Eu. usque ad S-Per.Afg., nec adhuc in Aethiopia reperta est.

— var. **grandiflora** Boiss. 1867.
Silene apetala Auct. non Willd. : Engler 1915.

Typus : *Spruner* (Attica).

Aethiopia : E. (M. Erareta, *Schimper;* fide Engler 1892). — Extra Africam Tropicam : S-Eu.

Observatio. — Specimina aethiopica porro comparanda.

Silene Burchellii Otth. in DC. 1824.

Silene pilosellaefolia Cham. et Schl. 1826; *S. Burchellii* var. *pilosellaefolia* Sonder 1859-60.

Typus : *Burchell* 271 (Lions Head versus Table Mount).

Observatio. — Species polymorpha, cuius forma typica in S-Af. tantum viget, fide Burtt-Davy (in Kew Bull. 1924) per Nu.Aeth. Ke.Ta.RU.Con.S-Rh.An.S-Af. diffusa.

— var. **angustifolia** Sonder 1859-60.

Silene Burchellii var. *cernua* Rohrb. 1868.

S. cernua Auct. non Thunb. : Bartl. 1832; *S. sericea* Auct. non All. : Rich. 1847; *S. bipartita* Auct. non Desf. : Schwfth. et Asch. 1867; *S. colorata* Auct. non Poir. : Rohrb. 1867 p.p., Schwartz 1939 p.p.; *S. Burchellii* Auct. non Otth. : Oliv. 1868 p.p., Martelli 1886, Penzig 1893, Engl. 1910.

Typus : *Mundt* (Voormansbosch prope Zwellendam).

Aethiopia : E.A?S. — Africa Tropica : Ke.Ta.Ny. S-Rh.Tr. — Extra Africam Tropicam : Tr.S-Af.

Observatio. — Cum *S. chirensem* comparanda.

— var. **latifolia** Sond. 1859-60.

Typus : *Zeyher* 84 (Crocodile River).

Aethiopia : sine loco (fide Burtt-Davy 1926). — Africa Tropica : Ke?Ta?Ny.Tr. — Extra Africam Tropicam : Tr.S-Af.

Silene chirensis Rich. 1847.

Silene Burchellii Auct. non Otth. : Oliver 1868 p.p.

Typus : *Quartin-Dillon* (Chire).

Aethiopia : E.A.H. — Africa Tropica : Nu.

Observatio. — Speciem *S. Burchellii* valde affinem, quacum saepe conjuncta, quaestione adhuc insoluta separatam servare praeferendum.

— var. **linearifolia** Rohrb. ex Engler 1892 nom. nud.

Typus : *Steudner* 1141 (Gaffat in valle Rep).

Aethiopia : A.

Observatio. — Ulterius comparanda et, si necesse, describenda.

— var. **macropetala** Schweth. 1896.

prob. *Silene arabica* Williams 1896, non Boiss. 1853.

Syntypi : *Schweinfurth* 2002, 2004 (Djebel Schibam prope Menacha in Arabia).

Aethiopia : E. — Extra Africam Tropicam : Ar.

Silene Engleri Pax 1893.

Silene flammulifolia Auct. non Steud. ex Rich. : Engl. 1892 p.p., Schweth. 1893.

Typus : *Schimper* 317 (Mettaro).

Aethiopia : E.

Nomen indigenum : fosi-gimmai (tigrinia).

Silene flammulifolia Steud. ex Rich. 1847.

Typus : *Schimper* 676 (M. Silke in Semien).

Aethiopia : E.A.H. — Extra Africam Tropicam : Ar. (var. *canescens* Will. 1896).

Silene Hochstetteri Rohrb. 1867.

Silene Schimperiana Hochst. nom. nud. in exs.

prob. *S. dianthoides* Auct. non Pers. : Roth ap. Harris 1844; *S. sericea* Auct. non All. : Schweth. 1867; *S. Choulettei* Auct. non Coss. : Schweth. et Asch. 1867.

Syntypi : *Schimper* 93, 2385 (Debra-Eski in Semien).

Aethiopia : E.A.S?

Nomina indigena : fosi-gimmai (tigrinia), siakul (prob. amhara).

Silene macrosolen Steud. ex Rich. 1847.

Silene macrosiphon Steud. ex Engler 1910 (sphalm.).

Typus : *Schimper* 651 (Dschenausa in Semien).

Aethiopia : E.A.H. — Africa Tropica : Dar.Ke. N-Ta.

Nomina indigena : ogkert (amhara), ssar-sari (tigrinia), ssaro-saro (saho).

Observatio. — In dolores abdominis et ascarides adhibetur.

Silene Schweinfurthii Rohrb. 1867.

Silene chirensis var. *Schweinfurthii* Schweth. 1896.

Syntypi : *Schweinfurth,* sine nr. (Djebel Schellal in Soturba), *Schimper* 298 (Adua).

Aethiopia : E. — Africa Tropica : Nu. —

Extra Africam Tropicam : Ar.

Observatio. — Ad *S. chirensem* arcte accedit.

Gypsophila L. 1753 (D. H. 2497).

Gypsophila somalensis Franchet 1882.

Gypsophila montana var. *viscida* Balf. f. 1883.

Typus : *Révoil* (vallis Gueldora prope Lasgori).

Aethiopia : SB. — Extra Africam Tropicam : Soc.

Nomen indigenum : ouélo-soubké (somali : Ouarsangueli).

Observatio. — *G. montana* Balf. f. 1882 typica e Soc. et S-Ar. fide Engler 1904 et Stroh (in Beih. Bot. Centralbl. *59*/B : 455-477.1939) eadem, fide Pax et Hoffm. in Engl.-Pr. 1934 et Schwartz 1939 diversa species. Si re vera synonyma, prioritas incerta manet.

Vaccaria Medic. 1789 (D. H. 2501).

Vaccaria pyramidata Medic. 1789.

Saponaria Vaccaria L. 1753; *S. segetalis* Necker 1768; *Vaccaria vulgaris* Host 1827; *V. segetalis* (Neck.) Garcke 1860; *V. Vaccaria* (L.) Huth 1893.

Typus : e Galliae et Germaniae segetibus.

Aethiopia : E.S. — Extra Africam Tropicam : Tr.N-Af.Ar.Ind.Eu.As.NS.Au.N-Am.

Observatio. — Species segetalis et ruderalis in Eu.As. et Med. indigena, hodie vaste diffusa.

Dianthus L. 1753 (D. H. 2502).

Dianthus leptoloma Steud. ex Rich. 1847.

Dianthus abyssinicus R. Br. ap. Salt 1814 nom. nud.

Syntypi : *Schimper* 1761 (Urahut), *Petit* (Semien).

Aethiopia : E.A.

Dianthus longiglumis Del. 1843.

Dianthus abyssinicus Auct. non R. Br. : Hochst. 1844.

Typus : *Ferret* et *Galinier* (Semien).

Aethiopia : O-A. — Extra Africam Tropicam : Ar.

NYMPHAEACEAE.

Nymphaea L. 1753, em. Smith 1808-09 (D. H. 2513).

Nymphaea capensis Thunberg 1800.

Nymphaea coerulea Andr. 1801, non Sav. 1798; *Castalia scutifolia* Salisb. 1806; *Nymphaea scutifolia* (Salisb.) DC. 1821.

Nymphaea stellata Auct. non Willd. : Pampan. ap. Chiov. 1916 et Auct. Fl. Africae trop. saltem p.p.

Typus : *Thunberg* (Caput Bonae Spei).

Aethiopia : SO. — Africa Tropica : Ke.Ta.Za. Mo.Ny.Tr. — Extra Africam Tropicam : SW-Af. S-Af.An?

Observatio. — *Nymphaea stellata* Willd. 1799 male distincta et saepissime confusa, in As.trop.Mad.Com.Mau. diffusa forsan in Af. deest.

Nymphaea coerulea Savigny 1798.

Nymphaea stellata Auct. non Willd. : Engler 1892, 1910 et Auct. Fl. Afric. saltem p.p.; *N. calliantha* Auct. non Conard : Gilg 1908; *N. capensis* Auct. non Thunb. : Auct. Fl. Aethiop. saltem p.p.

Typus : *Delile* (Aegyptus inferior).

Aethiopia : E.A. — Africa Tropica : Senr.Cor. SuA.Nu.Gh. — Extra Africam Tropicam : Aeg.

Observatio. — Fide Gilg 1908 tantum in ditione Nili praeter Ug.Ru.O-Con. indigena; his ab regionibus usque ad An. *N. calliantha* Con. arcte affinis vicarians reperitur.

Nymphaea Lotus L. 1753.

Castalia speciosa et *C. mystica* Salisb. 1805; *Nymphaea dentata* Schum. et Thonn. 1827.

Syntypi : in calidis (Indiae), Africae, (Americae).

Aethiopia : A.SO. — Africa Tropica : Cor. usque ad Ny.Con.Senl. usque ad An. — Extra Africam Tropicam : N-Af.Aeg.SO-Eu.Mad.Ind.IN.Am.

Nomina indigena : bari-kuanza (amhara), mungiù, bocore (somali : Goscia), bocoro (somali : Cansuma).

Observatio. — In Af. tantum indigena, unde iam priscis temporibus ornamenti gratia per orbem fere diffusa et in multis regionibus efferata. Fide Perrier 1950 tamen adhuc desideratur in Mas. Com. Sey.

Nymphaea nubica Lehm. 1853.

Typus : *Kotschy* 167 (Araschkool in Cordofan).

Aethiopia : O-GS. (Shala vel Shahala [nec « Aivala »] lacus, *Ellenbeck* 1705; fide Gilg 1908). — Africa Tropica : Senr.Cor.

Observatio. — *N. coeruleae* Sav. proxima et forsan potius huius subspecies.

CERATOPHYLLACEAE.

Ceratophyllum L. 1753 (D. H. 2516).

Ceratophyllum demersum L. 1753.

Typus : ex Europae fossis majoribus.

Aethiopia : E.A.H. — Africa Tropica : Senr.Cor. Gh.Ug.Ta.Con.RU.Ny.Mo.An.Ni.Senl. — Extra Africam Tropicam : SW-Af.Aeg.Ar.Mad.Eu. et fere cosmopolitum in regionibus trop. et temperatis.

Observatio. — Specimina africana plurima ad var. *oxyacanthum* (Cham.) K. Schum. 1894 referenda.

RANUNCULACEAE.

Nigella L. 1753 (D. H. 2530).

Nigella sativa L. 1753.

Nigella arvensis Auct. non L. : Terracciano 1897.

Typus : ex Aegypto et Creta.

Aethiopia : E.A.S.SF. — Africa Tropica : Nu. Dar.Ke. — Extra Africam Tropicam : Ar.N-Af.C-Eu.S-Eu.Ana.Cauc.Syr.Mes.Per.Afg.Ind.

Nomina indigena : habe-sodá (arabice), asmud, asmut, kor-azmut (amhara), awosséda, awosséta, avossedá, avossetá, awosetta (tigrinia), fétó (Scioa), abersudá (E. : Adi-Quala).

Observationes. — 1. — In Med. indigena, alibi culta tantum reperitur.

2. — Semina pro condimento adhibentur.

Delphinium L. 1753 (D. H. 2539).

Delphinium dasycaulon Fres. 1837.

Typus : *Rüppell* (Semien).

Aethiopia : E.A.S.H. — Africa Tropica : S-SuA. Ta.SO-Con.Ny.N-Rh.N-Ca.

Nomen indigenum : zellim-dobossom (tigrinia).

Delphinium Wellbyi Hemsley 1907.

Delphinium Ruspolianum Engler 1910.

Typus : *Wellby,* anno 1898 (inter Harrar et Addis Abeba).

Aethiopia : A.S.GS.H. — Africa Tropica : Ke.

— forma **albiflorum** (Chiov.) Cuf. comb. nova.

Delphinium Ruspolianum f. *albiflorum* Chiov. 1937.

Typus : *Taschdjian* 129 (Scioa : Haro ad fauces Urgan in planitie Gindebarath).

Aethiopia : S.

— var. **micranthum** (Fiori) Cuf. comb. nova.

Delphinium Ruspolianum var. *micranthum* Fiori 1940.

Typus : *Pucci Rapetti,* anno 1937 (Gimma).

Aethiopia : GS.

Anemone L. 1753 (D. H. 2541).

Anemone Thomsonii Oliver 1885.

Typus : *J. Thomson* (Kilimandjaro).

Aethiopia : Abyss., sine loco (fide Milne-Redhead & Turrill in FTEA : 12. 1952). — Africa Tropica : Ke. Ug.S-SuA.N-Ta.Con.

Clematis L. 1753 (D. H. 2542).

Clematis burgensis Engler 1910.

Typus : *Riva & Ruspoli* 1348 (Burgi).

Aethiopia : GS.

Clematis hirsuta Perrottet & Guill. 1831.

Clematis glaucescens Fres. 1837; *C. inciso-dentata* Rich. 1847; *C. Thunbergii* Steud. ex Harv. var. *glaucescens* Oliv. 1868; *C. Oliveri* O. Ktze 1885; *C. orientalis* L. ssp. *Wightiana* var. *typica* f. *glaucescens* et f. *incisodentata* O. Ktze 1885; *C. orientalis* L. ssp. *normalis* var. *albida* (Klotzsch) f. *Massoniana* O. Ktze 1885 p.p.; *C. orientalis* ssp. *Thunbergii* O. Ktze 1885 p.p., Lanza et Mattei 1910; *C. orientalis* ssp. *Wightiana* (Wall.) O. Ktze 1885 p.p., Engler 1892; *C. orientalis* L. var. *glaucescens*

Engler 1892; *C. intermedia* Chiov. 1911; *C. Wightiana* Wall. ex W. & A. var. *glaucescens* (Fres.) et var. *inciso-dentata* (Rich.) Fiori 1911.

C. grata Auct. non Wall. : Oliver 1868 p.p., Penzig 1893, Engl. 1910, Fiori 1912, Chiov. 1937 et 1939, Chevalier 1939, Senni 1951; *C. Thunbergii* Auct. non Steud ex Harv. : Oliver 1868 p.p., Dur. & Schz 1895 p.p., Engl. 1895 p.p., Chiov. 1932 et 1937, Fiori 1940; *C. Massoniana* Auct. non DC. : Dur. & Schz 1895 p.p.; *C. Wightiana* Auct. non W. & A. : Engl. 1895 et 1915 p.p., Ulbrich 1930 p.p. max.

Syntypi : *Perrottet* (Kounoun et Rufisk ad Promontorium Capitis Viridis).

Aethiopia : E.A.GS.S.H.SF. — Africa Tropica : Ke.Ug.Ta.SuA.RU.Con.Ny?N-Rh.Mo.An.OuC.Ca.Ni.To.GuiF. Gam.Senl.SuF. — Extra Africam Tropicam : Ar.

Nomina indigena : haso, azo-arag (amhara), kemidá (tigrinia).

Observationes. — 1. — Species summopere polymorpha vaste diffusa, tamen extra Af. et Ar. trop. nondum reperta.

2. — *C. intermedia* Chiov. fide auctoris inter parentes collecta est hybrida *C. simensis* × *C. hirsuta* (sub *C. Thunbergii*), fide Pichi-Sermolli pro mero synonymo habenda.

— var. **gallaënsis** (Engler) Cuf., comb. nova.

Clematis Wightiana var. *gallaënsis* Engler (1906 nom. nud.) ap. Mildbr. 1911; *C. Friesiorum* Ulbrich 1930.

Syntypi : *Ellenbeck* 1266, 1333 (Scheich-Hussein, Abunas), *Ruspoli & Riva* 1295 (inter Bidduma et Alghe), *Neumann* 8 (Sidamo).

Aethiopia : GS.H. — Africa Tropica : Ke. NW-Ta.

Observatio. — Hanc distinctam servare pro tempore malui.

Clematis longicauda Steud. ex Rich. 1847.

Typus : *Schimper* 1284 (Vallis Dibill ad M. Silke).

Aethiopia : A.S.

Nomen indigenum : hasó-gumuzunú (amhara).

Clematis simensis Fres. 1837.

Clematis simensis var. *β* Oliver 1868; *C. orientalis* ssp. *simensis* (Fres.) O. Ktze 1885 p.p. max.; *C. simensis* var. *kilimandscharica* Engler 1895.

Typus : *Rüppell* (Semien).

AETHIOPIA : E.A.GS.S.H. — AFRICA TROPICA : SuA. Ke.Ug.Ta.Ny.Con.S-Rh.An.SO-Ni.FP. — EXTRA AFRICAM TROPICAM : Mad.Ar.

Nomina indigena : haso, hasso, hosso (amhara), harag, harrak (tigrinia).

Observatio. — Semina trita sicut illa « sinapis » remedium in dolores rheumaticos praebent.

Ranunculus L. 1753 (D. H. 2546).

Ranunculus abyssinicus SCHUBE ap. ENGLER 1892.

Typus : *Schimper* 1151, anno 1863 (Gerra-Abuna-Tecla-Haimanot).

AETHIOPIA : A.H.

Ranunculus cuneilobus RICH. 1847.

Typus : *Quartin-Dillon* (Memsah in Tigre).

AETHIOPIA : E.A.S.

— var. **distrias** (STEUD. ex RICH.) ENGLER 1892.

Ranunculus distrias STEUD. ex RICH. 1847.

Typus : *Schimper 1258* (Demerki ad M. Buahit).

AETHIOPIA : A.

Ranunculus dertropodius STEUD. ex RICH. 1847.

Ranunculus tembensis AUCT. non FRES. : OLIVER 1868 p.p.

Typus : *Schimper* 754 (M. Buahit in Semien).

AETHIOPIA : A.

Ranunculus multifidus FORSK. 1775.

Ranunculus pubescens THUNB. 1800; *R. Forskoehlii* DC. 1818; *R. pinnatus* POIR. var. *Hermannii* DC. 1824; *R. membranaceus* FRES. 1837; *R. striatus* HOCHST. ex RICH. 1847.

R. pinnatus AUCT. non POIR. : SACLEUX 1908.

Typus : *Forskal* 698 (Taaës in Yemen).

AETHIOPIA : E.A.GS.S.H. — AFRICA TROPICA : Ke. Ug.Ta.Dar.RU.O-Con.SO-Con.Ny.Rh.Mo.Tr.An.Ca.N-Ni.FP. — EXTRA AFRICAM TROPICAM : S-Af.Mas.Mad.Ar.

Nomen indigenum : makhrus (Acrur in E.).

Ranunculus oligocarpos HOCHST. ex RICH. 1847.

Typus : Schimper 553 (Endschetcab ad M. Buahit in Semien).

AETHIOPIA : O-A. — AFRICA TROPICA : Ke.

Ranunculus oreophytus Delile 1843.

Ranunculus tenuirostris Steud. ex Hochst. 1844 nom. nud.; *R. oreophytus* var. *genuinus* Ulbrich 1930.

Typus : Ferret & Galinier (M. Silke in Semien).

Aethiopia : A.GS.H.S. — Africa Tropica : Ke. Ug.Ta.S-SuA.O-Con.

— forma **gunae** (Schwfth) Staner & Léon. 1950.

Ranunculus Gunae Schwfth 1868 : *R. oreophytus* var. *Gunae* (Schwfth) Ulbrich 1930.

Typus : *Steudner* 1207 (M. Guna prope Debra Tabor).

Aethiopia : A.GS. — Africa Tropica : Ke.N-Ta. Ug.O-Con.

Ranunculus simensis Fres. 1837.

Typus : *Rüppell* (Semien).

Aethiopia : A.

— var. **Schimperianus** (Hochst. ex Rich.) Schube ap. Engler 1892.

Ranunculus Schimperianus Hochst. ex Rich. 1847.

Typus : *Schimper* 1175 (Endschetcab ad M. Buahit in Semien).

Aethiopia : O-A.

Ranunculus stagnalis Hochst. ex Rich. 1847.

Ranunculus simensis var. *stagnalis* Oliver 1868; *R. vulcanicola* Staner 1939.

Typus : *Schimper* 554 (M. Buahit in Semien).

Aethiopia : A.S.GS. — Africa Tropica : Ke.Ug. Ta.O-Con.

— var. **soanensis** Schube ap. Engler 1892.

Ranunculus tembensis Auct. non Fres. : Schwfth 1867, quoad specimen citatum.

Typus : *Schimper* 200 (Soana ad M. Silke in Semien).

Observatio. — In mappis italicis locus « Sauanà » vel rectius « Suohnà » vocatur.

Ranunculus tembensis Fres. 1837.

Ranunculus stenocarpus Steud. ex Rich. 1847.

Typus : *Rüppell* (inter Tembien et Semien).

Aethiopia : W-E.O-A.

Ranunculus spec. indet. (fide Roth ap. Harris 1844, sub *R. trilobus* Desf.).

Nomen indigenum : goodie (amhara).

Batrachium S. F. Gray 1821 (D. H. 2546*).

Batrachium aquatile (L.) Dum. 1827.

Ranunculus aquatilis var. *α* L. 1753; *R. heterophyllus* Weber 1780; *R. aquatilis* var. *heterophyllus* DC. 1818; *Batrachium heterophyllum* Van den Bossche 1851.

Syntypi : ex Europae aquis undosis, fossis, rivulis.

Aethiopia : E.A. — Extra Africam Tropicam : Tr.S-Af.N-Af.Ar. et fere cosmopolitum in reg. temp.

— var. **caespitosum** (DC.) Cuf. comb. nova.

Ranunculus caespitosus Thuill. 1799 saltem p.p.; *R. pantothrix* var. *caespitosus* DC. 1818; *R. aquatilis* var. *caespitosus* DC. 1824; *R. fluviatilis* var. *caepitosus* Guss. 1828; *R. aquatilis* var. *succulentus* Koch 1837; *R. a.* var. *terrestris* Gr. & Godr. 1848; *Batrachium caespitosum* Opitz 1852; *B. aquaticum* var. *terrestre* Dum. 1863.

Typus : *Thuillier* (Parisis) p.p.

Aethiopia : E. — Extra Africam Tropicam : passim cum typo.

— var. **capillaceum** (DC.) Kickx 1865.

Ranunculus capillaceus Thuill. 1799 saltem p.p. *R. pantothrix* var. *capillaceus* DC. 1818; *R. aquatilis* var. *capillaceus* DC. 1824; *R. a.* var. *trichophyllus* (Chaix ap. Vill. 1786 pro. spec., nom. nud.) Coss. et Germ. 1845; *R. hydrocharis* Spenn. f. *confervoides* (Fries 1845 pro spec.) et f. *Drouetii* (Schultz ex Gr. & Godr. 1848 pro spec.) Hiern 1871 p.p.

R. aquatilis Auct. non L. : Dur. & Schz 1895, Engler 1915, Schwartz 1939.

Typus : *Thuillier* (Parisiis) p.p.

Aethiopia : E.A. — Extra Africam Tropicam : passim cum typo.

Observatio. — De specie agitur summopere polymorpha, cuius systema intra-specificum nondum bene notum et distributio geographica porro investigentur. Ex Af. trop. in Aethiopia tantum repertum videtur.

Thalictrum L. 1753 (D. H. 2548).

Thalictrum rhynchocarpum Qu.-Dill. & Rich. 1840.

Thalictrum longepedunculatum Hochst. ex Steud. 1841 nom. nud.; *T. Mannii* Hutch. 1927; *T. aduncum*, *T. impexum* et *T. innitens* Boiv. 1944.

Typus : *Quartin-Dillon & Petit* (Adua in Tigre).

AETHIOPIA : E.A.S.H. — AFRICA TROPICA : Ke.Ug. Ta.RU.O-Con.Ny.Rh.Tr.Ca.Ni.FP. — EXTRA AFRICAM TROPICAM : SO-Af.S-Af.

Thalictrum Schimperianum HOCHST. ex SCHWFTH 1867.

Thalictrum minus var. *scabrivena* OLIVER 1868; *T.m.* var. *Schimperianum* (HOCHST.) CHIOV. 1932.

T. minus AUCT. non L. : ENGLER 1892 p.p., DUR. & SCHZ 1895 p.p., PAX 1907, ENGLER 1915 p.p., HUTCH. & BR. 1941; *T. minus* var. *elatum* AUCT. non LEC. : ENGLER 1906.

Typus : *Schimper* 204 (Schullkull ad M. Buahit in Semien).

AETHIOPIA : E.A.GS.H.

Observatio. — Hanc speciem etsi *T. minori* L. affinem distinctam habere prodest.

BERBERIDACEAE.

Berberis L. 1753 (D. H. 2566).

Berberis Holstii ENGLER 1895.

B. aristata var. *subintegra* ENGL. 1900; *Berberis Petitiana* K. C. SCHNEIDER 1905.

B. tinctoria AUCT. non LESCH. : RICH. 1847, SCHWFTH & ASCH. 1867; *B. aristata* AUCT. non DC. : OLIVER 1868 p.p., ENGLER 1892 p.p., DUR. & SCHZ 1895 p.p., SENNI 1905, ENGLER 1910, 1915 p.p.

Typus : *Holst* 427 (Usambara).

AETHIOPIA : E.A.S?O-SB. — AFRICA TROPICA : Ke.Ta.

MENISPERMACEAE.

Cocculus DC. 1818, nom. conserv. (D. H. 2570).

Cocculus hirsutus (L.) DIELS 1910.

Menispermum hirsutum L. 1753; *M. myosotoides* L. 1753; *M. villosum* LAM. 1797; *Cocculus villosus* (LAM.) DC. 1818; *C. villosus* var. *glabrata* SCHWFTH 1896; *Holopeira villosa* (LAM.) MIERS 1851; *H. torrida* MIERS 1867; *Cebatha hirsuta* (L.) O. KTZE 1891; *Cebatha villosa* (LAM.) C. CHRIST. 1922.

Typus : *Plukenet* (India orientalis).

AETHIOPIA : E. — AFRICA TROPICA : Senr.SuA.Ug. Ta.Ke.Za.Ny.Mo.N.Rh.S.Rh.SO-Af.SW-Af. — EXTRA AFRICAM TROPICAM : Ar.Ind.Mal. usque ad S-Chi.

(Sequitur.)

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BRUXELLES
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